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An investigation of the relationship between college student development and alcohol consumption patterns

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AN INVESTIGATION OF THE RELATIONSHIP BETWEEN COLLEGE STUDENT DEVELOPMENT AND ALCOHOL CONSUMPTION PATTERNS

A Dissertation

Presented to

The Faculty of the School of Education

The College of William and Mary in Virginia

In Partial Fulfillment

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Doctor of Education

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by

Laura Greer Hensley

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COLLEGE STUDENT DEVELOPMENT
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ABSTRACT

The purpose of this study was to examine the relationships between college student development and alcohol consumption patterns. Student development was investigated in the domains of moral development through the use of the Defining Issues Test, identity development through the use of the Erwin Identity Scale, and intellectual development through the use of the Scale of Intellectual Development. Alcohol consumption patterns were studied in terms of binge drinking frequency according to responses on the Core Alcohol and Drug Survey. All participants were classified into one of four drinking pattern categories: Abstainers, Drinkers, Bingers, and Frequent Bingers. The study also used a discriminant analysis to determine the linear combination of student developmental and demographic variables which best predicts student drinking category membership.

The study was conducted through a randomized mailing to 400 undergraduate students at the College of William and Mary. The 114 respondents were residential, traditionally-aged students. Results showed that there was a significant effect for the Commitment subscale of the Scale of Intellectual Development by alcohol consumption category. Students who were Non-Bingers were more likely to have higher scores on this measure of commitment to a value system and personal method of processing information. There was also a significant effect for Greek membership by alcohol consumption category, as Frequent Bingers and Bingers were more likely to be members

of Greek organizations than were Drinkers and Abstainers. Commitment score and Greek membership were the strongest predictor variables in the discriminant function.

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An Investigation of the Relationship Between College Student Development and Alcohol Consumption Patterns

CHAPTER ONE: THE PROBLEM

Introduction

Need for the Study

According to nation-wide studies, eighty-four percent of college students drink alcohol (Wechsler & Dowdall, 1995). Students' alcohol use has caused growing concern among campus officials and others because it has become increasingly associated with negative behavioral, health, and academic problems (Harvard School of Public Health College Alcohol Study, 1995). In an examination of patterns of alcohol use, research indicates that those students who engage in binge drinking (defined as five or more drinks in one sitting) are more likely to experience these negative consequences than students who do not binge drink. Forty-two to forty-four percent of college students reported binge drinking during the two weeks prior to being surveyed (Wechsler, Moeykens, Davenport, Castillo, & Hansen, 1995; Presley, Meilman, & Lyerla, 1994). Binge drinking is indicative of a drinking style characterized by more frequent drinking (drinking on 10 or more occasions in the past month), more frequent intoxication (3 or more times in the past month) and drinking to get drunk (Wechsler, Isaac, Grodstein, & Sellers, 1994). Further, institutions in which a large number of students engage in binge drinking are also the schools with the most alcohol-related problems (Wechsler et al., 1995).

Wechsler and Dowdall (1995) argued:

> . . . binge drinking is the Number One public health hazard and the primary source of preventable morbidity and mortality for the more than 6 million full-time college students in America . . . . college binge drinking (as opposed to moderate or

> occasional drinking) must be clearly identified as a major acute and long-term health problem, and its standing in the agenda of higher education institutions and public health must be raised dramatically. (p. 926)

As suggested by Wechsler et al. (1995), the overall quality of student life may be significantly impacted by binge drinking on campus. Wechsler urged campus administrators to bolster the voices of students who are not binge drinkers, and to support them in dealing with their frustration with the second hand effects of binge drinking. Wechsler called for students experiencing these second hand effects of binge drinking to stand up for their rights; for an environment in which these behaviors occur can be transformed " . . . from one of a congenial academic setting to one where the quality of student life is degraded and scholarship is undermined" (Wechsler et al., 1995, p. 634).

It is proposed that administrators, faculty, and staff can work to promote responsible drinking choices among students by understanding developmental differences between those students who are binge drinkers and those who are drinkers or abstainers. This enhanced understanding may best be addressed within the framework of college student development theory. Institutions of higher education are growing increasingly aware of the inadequacy of their efforts to promote students' academic growth while neglecting other aspects of college student development. The Center for Addiction and Substance Abuse at Columbia University (CASA) Executive Commission (1994) recently charged:

> All members of the university community must openly acknowledge that their role extends beyond fostering the academic development of students, and schools must accept responsibility for providing programs that support the social, emotional, and

physical development of students, ease their transition towards adulthood, and prepare them for their critical roles in the society of the future. (p.3)

Research clearly supports the claim that students with higher levels of psychological maturity are the most successful in life; they are able to cope with the demands of their lives more efficiently, and can make decisions based upon a broader perspective. Efforts to actively promote student development may therefore be considered important goals of colleges and universities.

Sprinthall and his associates provided a rationale for promoting psychological maturity during the college years: psychological maturity has been found to have a significant relationship to post-college accomplishment (Sprinthall, Bertrin, & Whiteley, 1982). Students at higher levels of development are those best able to translate ability, knowledge, and skills into effective living and job performance. Heath (1978) asserted:

> The power of the liberal education we could offer our students is not the ever-changing informational content we too frequently try to stuff into their heads, but the control it gives our students of their continued maturing and adapting to meet the demands of an ever-changing world. (p. 210)

Whiteley (1982) believed college students would be more effective in utilizing what they learn in college if they developed psychological and personal skills in addition to those provided by the traditional academic disciplines. He concluded that society does have a vested interest in developing effective ways to influence the personal development of students during their college years. Diessner (1989) viewed students' development from both a cognitive developmental and systems perspective, in that students may be seen as a part of many collectives, including the college, family, nation, and civilization;

therefore promoting ethical development in the college student may also be viewed as reconstructing society. According to Diessner, ". . . our purpose for having educational institutions is to contribute toward an ever advancing civilization in both the micro (the individual) and the macro (the collectives)" (Diessner, 1989. p. 6).

Since students who are at higher levels of moral, identity, and intellectual development can feel a greater sense of internal control in determining the direction of their lives, they will question existing campus norms, reflect upon them, and consider alternative forms of social behavior. They can thereby make decisions based upon a personally-derived belief and value system. This ability to make responsible decisions based upon a wide array of alternatives will also translate to students' decisions regarding alcohol consumption. This study examined the hypothesis that students who are not binge drinkers are more likely to have progressed to higher levels of psychological development than their binge drinking peers.

Linking the areas of substance use and college student development research will enable alcohol prevention programs to be expanded to include the conditions which promote psychological development. Institutions of higher education will have an even greater reason to increase efforts to actively promote psychological maturity in students, through such means as seminars, faculty and staff training, residence hall structuring, peer-mentoring programs, and other activities outside of the traditional curriculum. The implications of such institution-wide action to promote growth, and thereby promote responsible decision-making, may shed some light on future directions for alcohol prevention programs on college campuses.

Theoretical Framework

Research in college student development is based largely on the ideas of cognitive developmental theorists Lawrence Kohlberg (1969) and William Perry (1970; revision. 1981), and psychosocial theorist Arthur Chickering (1969). These theorists have had considerable impact on both research and practice in college student development. and this study was based in part on their work.

Moral Development

A significant body of literature relates Kohlberg's theory of moral development to college student development. The model of moral reasoning describes six hierarchically ordered, qualitatively distinct stages of reasoning that people use when making decisions about questions of social justice. College may facilitate moral development in students because of the ample opportunities available for group discussion, moral education. and general intellectual stimulation (Finger, Borduin, & Baumstark, 1992). McNeel (1994) asserted the college environment includes the variables which Kohlberg (1969) characterized as necessary for moral development, including continued intellectual challenge, exposure to divergent views and cognitive moral conflict, and contact with others at the postconventional level of moral judgment.

Research has demonstrated that the qualities of a liberal arts education include conditions that also promote growth in moral development. McNeel (1994) described the purpose of liberal arts education as:

> the purpose of bringing students in contact with a highly diverse range of facts and views about the world. . . to see things from the other person's viewpoint and to appreciate systems different from their own. (p. 28)

The college experience contains the conditions which Kohlberg specified as necessary for promoting moral development. McNeel (1994) provided evidence that the college experience itself will promote growth, particularly in a liberal arts setting. His meta-analysis revealed that the college experience does promote growth in moral judgment (as measured by the Defining Issues Test); the large effect sizes of about 0.80 indicate that moral judgment is among the largest of any of the effects of college. McNeel's review of the research indicated students participating in non-required off-campus learning experiences showed strong growth profiles on the DIT; students' choice to participate in the experience and the amount of time involvement were factors relating to this growth. Various college experiences both in and out of the classroom challenge students to modify their current ways of making sense of the world which are no longer adequate; moral development may be thereby facilitated.

Identity Development

Studies show that identity is a developmental construct in that it increases throughout the four years of college, with the greatest gains occurring during the sophomore through the senior year. Students who show the greatest gains in measures of identity development are those who are satisfied with their academic performance and who have made a commitment to a vocational choice. Most of the research in the area of college student identity development has been influenced by psychosocial theory, primarily through the seminal work of Erik Erikson (1968). Chickering (1969) built his

integrative theory of college student development within the framework of Erikson's psychosocial theory.

Chickering's model is comprised of seven vectors, with the development of identity as the midpoint of the seven vectors. Chickering described the two major components of identity development as a clarification of conceptions of physical characteristics and personal appearance, and the clarification of sex roles, feelings and behaviors. Erwin (1977, 1988) added a third component of identity development to Chickering's model, which addresses a student's sense of self confidence. These three areas (physical and personal appearance, acceptance of sexual feelings, and self-confidence) comprise the subscales in the Erwin Identity Scale, Erwin's instrument to measure identity development in college students.

Intellectual Development

Perry's (1970; revision, 1981) scheme of intellectual and ethical development is based upon his longitudinal research with college undergraduates. The model or scheme describes the nine positions through which intellectual and ethical development unfolds; at each position, an individual has a qualitatively different understanding of the nature of knowledge and authority. Perry has described the continuum as being comprised of two major parts, with Position 5 being the pivotal stage dividing the two. Prior to Stage 5, individuals view the world through a dualistic lens; knowledge is perceived as dichotomous. At Stage 5, however, an individual has progressed to the recognition of the existence of multiple perspectives, and views these as relative, contingent, and contextual. Following this recognition, the individual is able to develop in ". . . orienting himself in a relativistic world through the activity of personal Commitment" (Perry, 1970,

p. 57). Broadly, the model describes how students move from a ". . . dualistic, right-wrong, black-white way of thinking about the world to a more committed and empathetic way" (Buczynski, 1991, p. 213).

Perry believed that the goal of college is to help relativistic students learn how to make intellectual and personal commitments. College can promote intellectual and ethical development as proposed by the Perry scheme, as students encounter a new and challenging environment in which they are brought into contact with diversity and multiple world-views. Students may learn to relativize previous beliefs, but many students continue to rely on an authority for the answers. As asserted by Lavallee, Gourde, and Rodier (1990), it is easier for students to conform to institutional demands rather than take a personal stand, especially if the institution values homogeneity in student beliefs and behaviors. For students to make the transition to positions of commitment, they must accept responsibility for themselves, rather than conforming to the standards of others. "To be able to break with others' views necessitates more than simple knowledge: it requires maturity, character and autonomy which can only be achieved with experience, critical reflection, and a sense of responsibility- processes which few people seem to actualize" (Lavallee, Gourde, & Rodier, 1990, p. 410).

Statement of the Problem

The purpose of the study was to examine the relationship between college student development and college student alcohol consumption patterns. Developmental levels were investigated in the domains of moral, identity, and intellectual development, and alcohol consumption patterns were examined in terms of binge drinking frequency.

Research Definitions

1. Binge Drinking: For the purposes of this study, binge drinking was defined according to Blane's (1977) definition of binge drinking; that is, consumption of five or more drinks in one sitting on a regular basis.
2. Binge drinker: For the purposes of this study, a student was considered to be a binge drinker if he or she reported having consumed five or more drinks in one sitting during the two weeks prior to the administration of the Core Alcohol and Drug Survey.
3. Frequent binge drinker: For the purposes of this study, a student was classified as a frequent binge drinker if he or she reported having consumed five or more drinks in one sitting on three or more occasions during the two weeks prior to the administration of the Core Alcohol and Drug Survey.
4. Drinker: A student was classified as a drinker of he or she drinks alcohol but did not report having engaged in binge drinking during the two weeks prior to the administration of the Core Alcohol and Drug Survey.
5. Abstainer: A student was classified as an abstainer if he or she reported no consumption of alcohol.

Specific Research Hypotheses

1. There are differences between frequent bingers, bingers, drinkers, and abstainers in level of moral reasoning as measured by the DIT.
2. There are differences between freshmen, sophomores, juniors, and seniors in level of moral reasoning as measured by the DIT.

3. There are differences between men and women in moral reasoning level as measured by the DIT.
4. There are differences between frequent bingers, bingers, drinkers, and abstainers in level of identity development as measures by the EIS.
5. There are differences between freshmen, sophomores, juniors, and seniors in identity development as measured by the EIS.
6. There are differences between men and women in identity development as measured by the EIS.
7. There are differences between frequent bingers, bingers, drinkers, and abstainers in level of intellectual development as measured by the SID.
8. There are differences between freshmen, sophomores, juniors, and seniors in level of intellectual development as measured by the SID.
9. There are differences between men and women in level of intellectual development as measured by the SID.
10. There are differences between freshmen, sophomores, juniors, and seniors in terms of alcohol consumption category.
11. There are differences between men and women in terms of alcohol consumption category.

12a. There is a relationship between a student's campus involvement and his or her alcohol consumption category

12b. There are differences between members of Greek organizations and non-members of Greek organizations in terms of alcohol consumption category.

Sample and Data Gathering Procedure

The target population for this study was residential college students of traditional age at liberal arts colleges in the United States. The subjects for the study were obtained from an accessible population of students from a selective, liberal arts college in eastern Virginia. According to 1996-97 statistics, the college had in attendance 5,619 undergraduate students. Each participant was a traditionally aged, residential, undergraduate student currently enrolled at the college.

The researcher administered the Defining Issues Test, the Scale of Intellectual Development, the Erwin Identity Scale, and the Core Alcohol and Drug Survey to 400 randomly selected undergraduate students by mail during the spring semester of 1997. The college at which the study was conducted had procedures in place to routinely administer the Core Alcohol and Drug Survey through a randomized mailing to students at the college. A master list of 700 students (300 graduate students and 100 students per undergraduate class) was generated, and all 700 students received the Core Alcohol and Drug Survey by mail. Since the present study was focused upon undergraduate student responses only, the 400 undergraduate students received the entire instrument battery in addition to the Core Alcohol and Drug Survey. Therefore, 400 randomly selected undergraduate students (100 per class) received the Core Alcohol and Drug Survey, the Erwin Identity Scale, the Defining Issues Test, and the Scale of Intellectual Development by mail in February 1997.

In summary, each participant received a mailing which contained the following documents, listed in order: a cover letter from the Student Affairs office, the Core Alcohol and Drug Survey, a cover letter which introduced the three additional

instruments, the Erwin Identity Scale, the Scale of Intellectual Development, the Defining Issues Test, a postcard marked with a code number, and a self addressed, stamped envelope for ease of return.

Limitations of the Study

This research was limited by:

1. This study employed the use of volunteer subjects and a mailed instrument battery. There may be important differences between those undergraduate students who took the time to complete a lengthy testing battery and those who did not respond to the survey, thus creating a sampling bias. The length of the instrument battery likely deterred many students from responding, as they may have perceived it as requiring an unreasonable time commitment.
2. Students were asked to provide information which is of a sensitive nature, namely their alcohol and drug use and its related behavioral consequences. The legal age to purchase and consume alcohol in Virginia is 21, and since the majority of the students who completed the study were under the age of 21, most respondents were reporting illegal activities when responding to questions about their drinking patterns. Drug use reported by students of all ages would also be illegal. Students must therefore have confidence in the anonymity and confidentiality of all responses, or they would not likely respond to the mailing. While the mailing was done in conjunction with the Office of Student Affairs at the College, it is difficult to determine whether the inclusion of this Office as a collaborator in the research enhanced or suppressed overall response rate. Some students may have been more likely to respond to the surveys because of their sense of obligation to the institution, while many students

may not have wanted to cooperate with the same offices which enforce the rules and regulations of student life.

3. A related limitation is a potential reporting bias on the Core Alcohol and Drug Survey. This study relies totally upon self reports of alcohol use; students may under- or over-report their use. (Wechsler et al., 1995). A number of studies have established the validity of self-reports of alcohol and substance use by corroborating the self-reports with known outside measures. These is also evidence that self-reports do remain consistent over time (Wechsler et al.,1994). As previously suggested, it is likely that if students feel uncomfortable in reporting their alcohol and other drug usage, they would not be likely to respond to the survey.
4. This study was conducted at a single institution, and generalizability was therefore limited. As this university is a highly selective, liberal arts college comprised primarily of traditionally aged, residential students, the findings of this study are limited; generalization to the college student population should be made with caution.

Plan for the Study

Chapter Two presents a selected review of the relevant literature regarding college student development and college student drinking patterns. The literature reviews college student developmental theories in the domains of identity development, moral development, and intellectual and ethical development. A review of the literature regarding college student binge drinking and its correlates is presented. Chapter Three presents the overall proposed research design of the study, including sample, data gathering procedure, data analysis, and ethical considerations. Chapter Four presents summaries of scores on Core Alcohol and Drug Survey, the Defining Issues Test, the

Erwin Identity Scale, and the Scale of Intellectual Development. Chapter Four also presents the analysis of the relationships between alcohol consumption patterns, developmental levels, class standing, and gender. Chapter Five presents the conclusions of the study, including discussion, implications, and recommendations for future research. Appendices follow the References.

Chapter Two: Selected Review of the Relevant Literature

Introduction

In the preceding chapter, a need was established for research which links college student development with college student alcohol consumption pattern literature. College student alcohol consumption pattern research and college student development theories in the domains of psychosocial and cognitive developmental theory were presented as frameworks for examining the relationship between development and alcohol consumption. This chapter will present a review of the current research on psychosocial theory and Chickering's theory of identity development as applied to college students. This chapter also presents a review of cognitive developmental theory research broadly, and specifically reviews the areas of moral development and intellectual development. A review of Kohlberg's theory of moral development and Perry's scheme of intellectual and ethical development as applied to college students is presented. Alcohol consumption patterns are the current focus of college student alcohol use and abuse research: a review of research in the area of college student alcohol consumption patterns is presented.

College student development theories

College student development research has focused on the dimensions and structure of growth in college students and on explaining how this growth occurs (Pascarella & Terenzini, 1991). In examining development, developmental theorists posit certain distinctions between change and development. Development differs from growth, which implies a non-directional expansion of internal cognitive or affective

characteristics, and also from change, which refers to any condition that is altered from a previous condition. Instead, development implies a process of growth that enables an individual to become increasingly complex (Sanford, 1966). It refers to "qualitative changes that take place and contribute to the individuals increasingly complex interpretation of his world, allowing him to integrate and act on a wide variety of differentiated experiences and influences" (Touchton, Wertheimer, Cornfeld, & Harrison, 1978, p. 153). Embedded in the concept of development is the premise that growth towards increasingly complex levels of development is to be valued and should be an aim of education (Sprinthall, Bertrin, & Whiteley, 1982; Heath, 1978; Perry, 1970; Pascarella & Terenzini, 1991).

Theories of college student development are generally divided into four clusters: 1. cognitive-structural theories, 2. psychosocial theories, 3. typological models, and 4. person-environment interaction models. According to Pascarella and Terenzini (1991), the most influential theorists in the area of college student development are Arthur Chickering (psychosocial theory), Lawrence Kohlberg, and William Perry (cognitive-structural theories). These theorists have had considerable impact on both theory and practice in college student development, and this study was based in part on their work.

Psychosocial theories

. Psychosocial theories of student development, built primarily upon the ideas of Erik Erikson (1968), assert that individuals develop through a sequence of stages which span the life cycle. Each phase of development follows a chronological sequence; at each stage the individual encounters crises which must be resolved by mastering certain developmental tasks. Crisis in the Eriksonian sense does not imply an emergency of a

physical or psychological nature, but rather a time in which an individual must make a significant choice from among an array of alternatives. The theory posits that at certain points in life, certain facets of the personality will become the central concern or developmental task to be addressed. The nature of these challenges is heavily influenced by biological and sociocultural or environmental factors (Knefelkamp & Sleiptza, 1978). Additionally, because they are influenced by external factors, these crises are not similar across cultures or gender. Psychosocial theories do not assume that the sequence of development occurs in a step-by-step or specific order (Sottile, 1994). An individual's ability to resolve a developmental crisis will greatly affect the resolution of succeeding tasks, and can affect the rate and extent of psychosocial development (Pascarella & Terenzini, 1991).

The facet of Erikson's work which has had considerable impact on college student development theory is the stage of identity resolution. The task of establishing a "workable self-definition" (Knefelkamp, Widick, & Parker, 1978, p. 5) is the central concern in late adolescence and early adulthood. Erikson's term identity crisis implies a time in which there is uncertainty in the answer to the question, "Who am I?" At this point, adolescents may ". . . look at themselves and see a complex collage of bits and pieces which do not quite fit together; they have to create some coherence in that collage" (Knefelkamp, Widick, & Parker, 1978, p. 6).

Erikson believed the resolution of the identity crisis is most often tied to the development of a vocational direction and personal value orientation. Factors which promote identity formation include experimentation with varied roles, the experience of choice, meaningful achievement, freedom from excessive anxiety, and time for reflection

and introspection. College can be a time in which a student can experiment and reflect on identity issues in an environment that exists in part to foster such development (Widick, Knefelkamp, & Parker,1980).

Chickering's Vectors of Identity Development

Chickering (1969) built his integrative theory of college student development within the framework of Erikson's psychosocial stages of development. He devised a model of seven vectors, which reflect the developmental tasks an individual masters during the young adult years. The vectors provide a broad developmental framework within which an individual develops a personal value system (Kilgannon & Erwin, 1992). As students progress through the developmental tasks, they become more comfortable with themselves and others, and begin to internalize a set of values which guide their behavior. Development along each vector therefore involves a process of integration so that an individual develops a coherent concept of him or herself. Chickering placed the development of identity as the midpoint of the seven vectors. He believed identity is dependent on the three preceding vectors of competence, emotions, and autonomy, and then sets the stage for the next three vectors of interpersonal relationships, developing purpose, and integrity. The seven vectors, as posited by Chickering, (1969) and described by Pascarella and Terenzini (1991) are presented in Table 1.

Table 1

Chickering's Vectors of Identity Development

Vector 1: Achieving Competence. Individuals must develop a sense of intellectual and interpersonal competence.
Vector 2: Managing Emotion. Students must manage emotions that stem from biological and social factors. Chickering argues that emotions which involve sex and aggression are salient during late adolescent and early adulthood. The rigid, inflexible controls exerted on students from parents and authority figures are gradually replaced with internal controls, and they must learn to manage emotion rather than be controlled by it.
Vector 3: Developing Autonomy. The paradox of the necessity for both independence and interdependence is recognized. Autonomy is understood as both the development of personal independence and the simultaneous recognition of the importance of the need for others.
Vector 4: Establishing Identity. This vector is pivotal in the model; identity depends upon the development of competence, managing emotions, and autonomy, and is necessary for the remaining vectors (freeing interpersonal relationships, developing purpose, and developing integrity). Clarifications of the way an individual conceptualizes his or her appearance and body image, and clarification of sex roles and behavior are critical components of identity development.

Vector 5: Freeing Interpersonal Relationships. As individuals develop their personal identities, they are increasingly able to tolerate diversity in their interactions with others; this openness contributes to the development of intimate relationships.
Vector 6: Developing Purpose. This vector involves the examination of the questions "Who am I going to be? Where am I going?" It requires the integration of priorities in various aspects of the student's life, including vocational aspirations and life-style choices
Vector 7: Developing Integrity. This involves the "clarification of a personally valid set of beliefs that have some internal consistency and that provide at least a tentative guide for behavior"
Note. From Chickering (1969, p.17)

Conditions for Growth.

Chickering (1969) identified six major areas in which college influences students in their development along the vectors. These include:

1. Clarity of institutional objectives and internal consistency of policies, practices and activities.
2. Institutional size; impact decreases if size restricts opportunities for student involvement.
3. Curriculum, Teaching, and Evaluation; impact is promoted through student participation in learning, curricular flexibility, and learning-oriented evaluation.
4. Residence hall arrangements; living arrangements can impact development in competence, purpose, integrity and freeing of interpersonal relationships by the diversity of backgrounds and attitudes among the residents. Opportunities for exchanges of ideas, and the sense of residence arrangement as a community also enhance development.
5. Faculty and administration; frequent and quality interaction between students and faculty fosters growth.
6. Friends, groups, and student culture; student culture, either positively or negatively, can impact other influences on development.

Chickering described the two major components of identity development as (1) a clarification of conceptions of physical characteristics and personal appearance and (2) the clarification of sex roles, feelings and behaviors. Erwin (1988) expanded upon Chickering's model by adding a third component to identity development which

addresses a student's sense of self-assuredness (the Confidence component); these three areas comprise the subscales in his instrument to measure identity development. The subscales therefore include: Confidence, a measure of individual self-assuredness; Sexual Identity, an indication of the clarification, understanding, and acceptance of one's sexual feelings; and Conceptions about Body and Appearance, a reflection of an accurate self-perception and acceptance of one's body and appearance. The development of the Erwin Identity Scale (EIS) and its psychometric properties are discussed more fully in Chapter 3.

Validation of model.

A study examining identity development in college students used the EIS in a longitudinal design (Erwin & Kelly, 1985). One hundred thirty two students completed the EIS Confidence scale and some additional questions about environmental variables during their freshman year and again during their senior year. Environmental variables which were examined included: academics, career, intimacy, and participation in extracurricular activities. Results showed students made significant gains in confidence from freshman to senior year. After removing any effects for students' confidence levels when they entered college, seniors' confidence was best predicted by their satisfaction with their academic performance, followed by their reported commitment to a vocational choice. The 1985 study also found that freshmen Confidence scores seemed to decrease during the first year; however, the scores resumed and increased dramatically by the end of the senior year.

Hood, Riahinejad and White (1986) completed a longitudinal study using the EIS at the University of Iowa which examined all three components of the EIS: Confidence,

Sexual Identity, and Conceptions about Body and Appearance. The mean scores on all three subscales increased from freshman orientation to senior year for both sexes. After being tested in the summer before freshman year, a group of students was additionally retested during the spring of the freshman year; there were no mean increases in scores on the Confidence and Sexual Identity subscales, but there was a significant decrease in scores on the Concerns about Body Appearance Scale. Four years later, student scores on the Confidence subscale showed a significant increase. The Sexual Identity subscale, which remained the same during the freshman year, had significantly increased by the senior year. The Concerns about Body Appearance scale, which decreased during the freshman year, showed a smaller but statistically significant increase from the original summer orientation testing, and a larger increase from the freshman year retests. Overall, then, most of the increase in scores occurred during the sophomore through senior years. This finding is contrary to Chickering's (1969) belief that most of the change in college occurs during the freshman year. An important finding from this longitudinal study was the relationship found between involvement in campus groups and recreational activities. and growth on the EIS subscales. Those students who were active in organizations and recreational activities had significantly higher scores as seniors on all three subscales.

A study which examined the relationship between identity development and intellectual development in college freshmen was conducted using the Erwin Identity Scale (EIS) and Scale of Intellectual Development (SID, Erwin, 1981) (Buczynski, 1991). A sample of 467 freshmen completed both instruments at the beginning of their freshman year. Results showed identity and cognitive development to be negatively related in freshmen. In this sample, the higher a student's level of cognitive development, the lower

his or her development of identity. Buczynski (1991) hypothesized that students with higher levels of intellectual development may have had a heightened awareness of the challenges of the new college environment and were questioning themselves to a greater extent about their ability to adapt in their new surroundings than were other students. Students who had lower scores on the SID (dualistic thinkers) were possibly more myopic, and not as sensitive to the requirements and responsibilities of their new college environment. Further research is needed to determine if the relationship between identity and cognitive development exists throughout the years in college.

Conclusion.

This section has reviewed both Erikson's work in psychosocial theory, and also demonstrated how Chickering applied Erikson's concepts to develop identity development vectors for specific application to college students. Chickering examined college student identity development in terms of two broad areas: conceptions about body and appearance, and sexual identity. Erwin added a third component to identity, which he termed the confidence component. Erwin used the three components of confidence, conceptions about body and appearance, and sexual identity as the three subscales in the Erwin Identity Scale, a measure of identity development in college students. Studies show that identity is a developmental construct in that it increases throughout the four years of college, with the greatest gains occurring during the sophomore through the senior year. Students who show the greatest gains in measures of identity development are those who are satisfied with their academic performance and who have made a commitment to a vocational choice.

Cognitive-structural theories

Cognitive structural theories of student development are grounded in the work of Jean Piaget (1964). These theories seek to describe the process of change, focusing on the cognitive structures individuals use in constructing meaning. According to cognitive-developmental theorists, development occurs in invariant, sequential, and hierarchical stages in which an individual interacts with the environment in qualitatively different and increasingly more complex ways. Each stage displaces and reintegrates the cognitive structures found at earlier and lower stages (Whiteley, 1982). Higher developmental stages involve thinking that is more complex, can integrate more variables, and solve problems in a more comprehensive manner. At higher levels of psychological maturity, an individual ". . . can think more consistently, critically, logically, scientifically" (Sprinthall et al., 1982, p.4).

Equilibration describes the natural process by which individuals change their thinking in acquiring more adequate ways of perceiving the world (Whiteley, 1982). When individuals are challenged so that old ways of problem solving are no longer adequate, they become disequilibrated; Whiteley explains, ". . . it is the process that each individual undertakes in the face of disequilibrium that promotes growth" (p. 46).

Cognitive developmental theorists postulate certain assumptions regarding human behavior:

1. Humans have an inborn drive for personal competence. They are motivated to seek out and understand the world in increasingly complex ways. This has implications for higher education, in that the drive to learn is innate and does not have to be instilled in students.

2. Development occurs in stages, each of which represent an individual's currently preferred style of problem-solving or thinking. Dewey (1938) suggested that children develop in a sequence of distinct stages which represent their way of organizing thought processes in an attempt to understand the world around them. Piaget (1964) expanded upon this idea by asserting that information obtained through interacting with the environment is processed through a system representing cognitive structures, which he termed stages.
3. There are qualitative, rather than quantitative, differences in stages. Individuals do not just gain more information as they develop, but change their ways of thinking and approaching problems. Each stage builds upon and is dependent upon the preceding stage.
4. Stages of development follow an ordered, hierarchical sequence, going from the less complex to the more complex. Stages form an order of increasingly differentiated and integrated structures for fulfilling a common function. Accordingly, ". . . higher stages displace (or rather integrate) the structures found at lower stages" (Colby and Kohlberg, 1987, Vol. I. pp. 6-7). Once the individual has progressed to a higher stage, he or she will not return to functioning at a less complex level, as it is now viewed as inadequate.
5. There is a consistent relationship between developmental stage and behavior. Blasi (1980) reviewed literature of moral development studies, and found there is a moderate correlation between moral developmental stage and moral behavior. A person's stage does not determine behavior, but it does influence how that person goes about making the decisions which do influence behavior in a particular experience.

6. Developmental growth is interactive. Growth is not automatic but results rather from an interaction between a person and his or her environment. Lewin (1935) developed the formula: B=f (P, E), or Behavior is a function of both Person and Environment. An individual will not develop to his or her full developmental potential without exposure to significant experiences which promote the shift from lower to higher stages of development.
7. Developmental growth is domain specific. Development in one domain does not imply growth in all areas of cognitive processing; level of development can not be generalized across domains.
8. There is cross-cultural universality of cognitive development. Cultural factors may speed up slow down, or stop development, but they do not change its sequence. Snarey, Reimer, and Kohlberg (1985) found Kohlberg's stages across culturally diverse samples. The rate of stage movement was found to depend on the stimulation in the cultural environment; persons will only develop to the extent necessary to cope with the demands of their environment in a meaningful way.

A final assumption which is common to all developmental theories is that higher stages are preferable to lower ones. As introduced in Chapter One, college students at higher levels of development are able to handle the demands of the college environment more effectively, and are more successful in their lives after college (Sprinthall, Bertrin, and Whiteley, 1982). Promoting cognitive development in students makes them better learners, and provides the "student with an enhanced repertoire of intellectual resources so that (he or she) can adapt more rapidly and efficiently to changing cognitive and non-cognitive environments" (Pascarella and Terenzini, 1991, p. 559).

Promoting Psychological Development.

If promoting cognitive development in students is an aim of education, how can this growth best be fostered? Research has identified certain optimal matches between learners and their environments which will promote growth towards higher levels of maturity. Blocher (1980) proposed seven variables which are essential for growth to occur:

1. Involvement: there must be psychological involvement between the learner and the environment.
2. Challenge: the learner and environment must be slightly mismatched; there should be a tension between the demands of the learning environment and the cognitive structures and coping styles of the learner.
3. Support: The learner must feel that there are significant others in the learning environment who are available to provide empathy, caring, and honesty through the challenge of the learning experience. There should be available a "network of positive interpersonal relationships" (Blocher, 1980, p. 4).
4. Structure: The learner has exposure to more advanced levels of development than he or she is currently using; through this exposure to more complex problem-solving strategies, the learner can perceive them as more adequate in meeting the demands of the environment.
5. Feedback: The learner receives immediate, direct, and clear feedback about his or her performance.
6. Application: The learner has ample opportunities to apply the new skills and concepts learned in a real world setting.

7. Integration. The learner reflects upon and processes the learning experience in a supportive atmosphere, in which he or she is encouraged to integrate new learning with previous experience.
8. Continuity: The learner must be exposed to the new challenging yet supportive environment for a continuous period of time; optimally two semesters of action and reflection are required for significant cognitive development to occur (Reiman, 1995).

Conclusion.

This section presented an overview of cognitive developmental theory and how its concepts may be applied to the understanding of college student development. The basic assumptions which underlie the cognitive developmental framework were discussed. A review of Blocher's conditions necessary to facilitate psychological growth was presented.

Lawrence Kohlberg's Theory of Moral Development.

Kohlberg sought to build upon the earlier work of John Dewey (1963) and Jean Piaget (1964) regarding questions of virtue and justice. Dewey (1963) conceptualized three levels of moral development: pre-moral, conventional, and autonomous. He asserted that value and moral considerations were an important part of education and that development should be an aim of education. Piaget proposed a two stage model of moral development: the stage of heteronomy, based on a morality of constraint, and the second, more mature stage, termed the stage of autonomy, based on a morality of cooperation. Lawrence Kohlberg attempted to validate these theories in his dissertation research by examining the stages of moral development in a study of 50 boys ages 10-16. He

postulated that the ways in which people think about questions of social justice represent distinct and qualitatively different stages of moral judgment. Each stage is more complex in nature than the preceding one, and at higher stages individuals are increasingly better able to understand mature and abstract principles of fairness and justice (Whiteley, 1982). Kohlberg was concerned not with the content of moral choices, but with the modes of reasoning through which moral choices are made. Content, which may be socially or culturally determined, is less a focus than the process of moral reasoning, which is thought to be universal. Kohlberg distinguished between a rule, which prescribes action, and a principle, which serves as a guide for choosing among behaviors (Kohlberg & Mayer, 1972).

Kohlberg's stage theory posits the following assumptions:

1. Stages imply a qualitative difference in structures which still serve the same basic functions at various points in development.
2. Structures are ordered in a universal, invariant sequence, so that movement is always forward. Cultural factors may speed or retard development, but they do not change its sequence.
3. Each mode of thought, or process, is a structural whole in that structures represent underlying thought organization which will be consistent across situations.
4. Stages are hierarchically integrated. Higher stages are qualitatively different than lower stages; they are reintegrations of structures found at lower stages (Colby & Kohlberg, 1987).

The theory of moral reasoning posits three levels of moral reasoning which each contain two stages; the three levels and six hierarchically ordered developmental stages are presented in Table 2.

Table 2: Kohlberg's Stages of Moral Reasoning: Three Levels

Level I: Preconventional. At Stage One and Two, moral reasoning is highly egocentric; the individual views what is right based upon the gratification of his or her own needs.
Level II: Conventional. At Stages Three and Four, reasoning is based on an increasing concern with maintaining the social order. Moral judgments are guided by meeting the expectations of others and eventually to rules and social authority.
Level III: Postconventional. At Stages 5 and 6, moral reasoning is viewed as universal principles for making choices among alternative courses of action that could be upheld by any rational, moral individual (Pascarella and Pascarella, 1991, p. 31).

Six Stages of Moral Reasoning:

Conceptions of How to Organize Cooperation

Stage 1	The morality of obedience: Do what you're told.
Stage 2	The morality of instrumental egotism and simple exchange: Let's make a deal.
Stage 3	The morality of interpersonal concordance: Be considerate, nice and kind: you'll make friends.
Stage 4	The morality of law and duty to the social order: Everyone in society is obligated to and protected by the law.
Stage 5	The morality of consensus-building procedures: You are obligated by the arrangements that are agreed to by due process procedures.
Stage 6	The morality of non-arbitrary social cooperation: Morality is defined by how rational and impartial people would ideally organize cooperation.

Note. From Rest, 1994, p.5

The moral stages which are most relevant to the college years are Stages 3 and 4. Sprinthall and Collins (1984) report that most students are in transition from Stage 3 to Stage 4 during the college years. At Stage 3, the individual defines what is right by "living up to what is expected by people close to you or what people generally expect of people in your role as son, brother, friend, etc. " (Kohlberg, 1976, p. 34). The Stage 3 individual sees questions of social justice in terms of shared relationships rather than in terms of society as a whole. Kohlberg explains the Stage 3/Stage 4 distinction as follows:

> In summary, whereas the Stage 4 member-of-society perspective is a 'system' perspective, the Stage 3 perspective is that of a participant in a shared relationship or shared group. (p. 39)

Most studies place the traditional college freshman (age seventeen to nineteen years old) at the conventional level of moral reasoning (Pascarella & Terenzini, 1991). College students at the conventional level of moral reasoning may be conceptualized as attempting to conform to groups and maintain social order. As they develop, however, students shift from conventional to principled ways of thinking whereby they will define moral values apart from the authority of groups or other individuals (Kilgannon & Erwin, 1992). Smith (1978) believed the college experience is important for the development of moral reasoning because students will either remain at the conventional level of reasoning, or will be jarred to begin to question previously unquestioned beliefs.

Validation of stage model.

Kohlberg (Colby and Kohlberg, 1987) conducted a twenty-year longitudinal study in an attempt to validate his stage theory. The 51 subjects were given oral interviews on

Forms A, B, and C of the Moral Judgment Interview. Results showed that both individually and as a group, subjects moved to higher stages over the twenty year period. Sixty-seven percent of subject's reasoning fell at each individual's modal stage, and 99 percent fell within two adjacent stages. None of the subjects skipped a stage. At age 10. 59 percent of subjects were rated at Stage 2, 26 percent at Stage 1, and 14 percent at Stage 3. By age eighteen, no subjects scored at Stage 1. 20 percent were at stage 2. 58 percent at Stage 3, and 20 percent were at Stage 4. At age 36, Stage 1 and 2 were completely absent, Stage 3 had decreased to 31%, Stage 4 had increased to 62%, and Stage 5 was found in 7% of subjects. In this study, age accounted for 60% of the variability in scores. Educational experience had an important influence; subjects did not attain Stage 4 unless they had attended college.

A ten-year longitudinal study employing the Defining Issues Test was conducted by Rest (1986; 1994). While subjects showed increases in moral judgment stages with age, a more powerful predictor of moral judgment stage was educational attainment. The general trend as reported by Rest (1994) was that as long as students continued in an educational setting, their DIT scores increased, but when they stopped their formal education, their scores plateaued. Rest concluded that the best predictor of the DIT scores of adults was not chronological age or gender, but level of education.

Cross-cultural research has tended to support Kohlberg's (1969) claim that moral stages transcend "cultural specific ethical value systems, religions, political ideologies, and conceptions of the cosmic order"; they will therefore be universally found ". . . unless powerful social pressures and fundamentalist ideologies prevail over this natural hierarchy" (Gielen, 1991, p. 42). Kohlberg argued that specific morals of cultures are

ever-changing, but beneath these morals are deep, underlying structures that remain constant; he asserted that his moral stages were such deep structures (Rest, 1994).

In a cross cultural, longitudinal study utilizing the Moral Judgment Interview, Snarey, Reimer, and Kohlberg (1985) examined the moral development of 92 Middle Eastern Israeli adolescents over a five-year period. No subjects skipped a stage; additionally, moral reasoning increased with age, as age accounted for 40 percent of the variance in moral maturity scores. Eighty-three percent of the subjects reasoned at a single stage or were in transition between two adjacent stages, and 32 percent used reasoning from three adjacent stages. Findings from the study support evidence for the universality of moral judgment stages. Other studies conducted in vastly different societies (e.g., Kenya, Taiwan, and Turkey, as summarized in Gielen, 1991) have also provided support for the cross cultural applicability of Kohlberg's theory.

Carol Gilligan (1982) proposed that Kohlberg's theory of justice reasoning favored the abstract, rights-orientation of men and therefore did not adequately capture the nature of women's moral development. Gilligan believed that men and women have two distinct orientations or voices, with women having a voice of care, connection, and responsibility, and men possessing an abstract, impersonal, rights-oriented mode of reasoning. Gilligan's claim that men are favored by the research methods of Kohlberg, however, is not supported by reviews of the literature. Walker (1991) reviewed eighty studies involving 10, 637 subjects from North America and other societies. For 85.5 percent of the samples (n=130), no significant gender differences were reported. For 5.9% (n=9) of the studies, females received significantly higher scores than males, while for 8.6% of studies (n=13) males received higher scores than females. By completing a meta-

analysis to statistically integrate the results of the studies, the author found that gender was not a predictor of moral development; gender accounted for one-twentieth of one percent of the variance. As Gielen (1991) noted, Gilligan's claims have created controversy and have sparked research in gender differences in moral reasoning. Her assertions have been contradicted by reviews of the empirical research, but have nevertheless broadened conceptualizations of moral development to include a greater emphasis on caring and responsiveness to the needs of others.

Developmental theory is based on the notion that higher stages are preferable to lower stages in that higher stages are more complex, and enable an individual to take more factors into account in order to reason from a broader perspective. In a series of studies which specifically addressed the "is higher better" question, Rest (1994) found that comprehension for stages of moral development was cumulative; for example, if subjects had comprehension for Stage 3, then they understood the reasoning of Stages 1, 2, and 3, but not of 4, 5, and 6. Individuals also seem to prefer reasoning at their current stage of development. In Rest's study, although subjects could comprehend reasoning at levels beneath their own, they recognized them as being inadequate; as they move beyond old ways of thinking, they are still able to understand lower stages but no longer prefer them. When subjects comprehend two stages, they prefer the higher stage and reject the lower one (Rest, 1994).

Higher levels of moral development are also considered to be preferable to lower stages because of the relationship between moral reasoning and moral action. In an analysis of the relevant literature, Pascarella and Terenzini (1991) concluded that there is a relationship between moral reasoning and moral behavior among college students.

There are statistically significant positive associations between principled reasoning and resistance to cheating behavior, resistance to peer pressure, resistance to unlawful or oppressive authority, and civil disobedience, ". . . whistle-blowing on corruption. keeping contractual promises, political and social activism, non-aggression, and helping behavior" (Pascarella & Terenzini, 1991, p. 363). They extrapolate the hypothesis that since college appears to affect the development of principled moral thinking, and principled moral judgment enhances the likelihood of moral behavior, there is then a link between college student development and moral action.

Moral reasoning and moral action are indeed related, but the research has demonstrated a modest association. Reviews by Rest (1986) and Blasi (1980) show typical correlations of between 0.3 and 0.4. In an extensive review of 70 studies relating moral reasoning to moral action, Blasi (1980) found that moral reasoning and moral action are statistically related; in 78 percent of the studies there was a relationship between moral reasoning and moral behavior. He stipulated. however. that this relationship should be qualified, for the strength of the relationship varied from area to area. Support was strongest for the hypotheses that moral reasoning differs between delinquents and nondelinquents, and that individuals at higher stages of moral reasoning were more likely to display altruistic or prosocial behavior. Finally, Blasi (1980) concluded that while individuals at higher levels were able to resist pressure to conform to others' views of moral judgment, there was little evidence that individuals at higher levels of moral reasoning were able to resist social pressure to conform in their moral action.

Rest's Four-Component Model.

Rest (1994) attempted to expand upon the relationship between moral reasoning and moral behavior, and hypothesized that there were several factors involved in determining moral behavior, with moral reasoning being only one such variable. In examining moral behavior, Rest asked, "What must we assume happens psychologically in order for moral behavior to take place?" There are four components of the expanded model:

1. Moral Sensitivity. This involves the awareness of one's actions and their effect on others. One must be able to interpret various lines of action and how these actions will affect others involved.
2. Moral Judgment. This is the component which Kohlberg's theory addresses specifically. It enables an individual to determine which of the available alternatives is just or right.
3. Moral Motivation. This component involves the importance an individual attaches to moral values *vis a vis* other values. One may be able to recognize a moral dilemma, judge what is right, but nevertheless decide to put other values ahead of moral values when deciding a course of action.
4. Moral Character. This component involves ego-strength and perseverance; if a person is weak-willed or wilts under pressure, he or she may not follow through with moral action. (Rest, 1994, p. 24)

Rest asserted the components do not follow a temporal order, but that there are complex interactions among the four processes which determine moral action. More

research is needed to further highlight the interactions among the four components, and to develop adequate predictors of moral behavior in college students.

Moral Development and the College Environment.

College may facilitate moral development in students because of the ample opportunities available for group discussion, moral education, and general intellectual stimulation (Finger, Borduin, & Baumstark, 1992). McNeel (1994) asserted the college environment includes the variables which Kohlberg (1969) characterized as necessary for moral development, including continued intellectual challenge, exposure to divergent views and cognitive moral conflict, and contact with others at the postconventional level of moral judgment.

McNeel (1994) described a liberal arts education as having ". . . the purpose of bringing students in contact with a highly diverse range of facts and views about the world. . . to see things from the other person's viewpoint and to appreciate systems different from their own" (p. 28). Through various college experiences both in and out of the classroom, a student is challenged to modify his or her current ways of making sense of the world which are no longer adequate. Principled moral reasoning develops through this challenge.

Finger, Borduin, and Baumstark (1992) used a broad framework to evaluate demographic, family relationship, and peer relationship variables as predictors of moral judgment levels in college students. Through the use of a stepwise multiple regression procedure, the number of years in college was found to be the strongest predictor, accounting for 13% of the variance. Frequency of informal social activities accounted for

an additional 5% of the variance. The addition of age, socioeconomic status, parental control, and parental warmth did not, however, significantly increase the predicted variance. They concluded class level was a stronger correlate of moral judgment as measured by the DIT than were parental or demographic variables. Their results concur with Rest and Thoma's (1985) findings that years of college accounted for 14% of the variance in the development of moral judgment in young adults. Finger. Borduin, and Baumstark (1992) found that college courses and activities provide the sort of interactions which enhance moral development. Further, they reported that social activities with friends and others may stimulate role taking and problem solving and may ultimately promote more mature moral judgment. They suggest that although their results explain only a portion of the variance in moral judgment for their sample, overall, college does seem to provide an important context for the development of moral maturity in college students, as reflected in principled moral reasoning.

McNeel (1994) provided evidence that the college experience itself will promote growth, particularly in a liberal arts setting. His meta-analysis revealed that the college experience does promote growth in moral judgment (as measured by the Defining Issues Test); the large effect sizes of about 0.80 indicate that growth in moral judgment is among the largest of any of the effects of college. It seems that the qualities of a liberal arts education include conditions that also promote growth in moral development. McNeel's review of the research indicated students participating in non-required off-campus learning experiences showed strong growth profiles on the DIT; students' choice to participate in the experience and the amount of time involvement were factors relating to this growth.

Other factors involved in growth include interactions with faculty members outside of class. Students who reported no such contact during their college experience had lower growth in principled reasoning than those who reported at least some out of class contact with professors. McNeel concluded "gentle and nonauthoritarian" interactions between faculty and students out of class may be experiences which are likely to facilitate moral judgment growth in students (McNeel, 1994, p. 38).

In another study which examined the relationship of moral judgment and college student development, Mason and Gibbs (1993) specifically focused upon students' transition between Kohlberg's Stages 3 and 4. They examined the hypothesis that Stage 4 usage was related to expanded role-taking opportunities which take place in college. Four perspective-taking contexts for college students were explored: academic, campus peers, employment, and exposure to social diversity. Subjects were from freshman and senior classes of a single institution (n=153). Mason and Gibbs (1993) reported support for Kohlberg's claim that role taking opportunities in higher education were necessary for advancement to moral reasoning at Stage 4 and higher; increased role-taking experiences in the contexts of academics, peers relationships, employment, and social diversity seemed to promote the transition from Stage 3 to Stage 4. Intellectual perspective-taking in academic settings accounted for more of the moral judgment variance than did any of the other three factors, although employment-related, peer, and socially diverse experiences were also significantly related to advanced moral judgment.

Mason and Gibbs (1993) explained that role taking opportunities may stimulate moral judgment development beyond Stage 3 because they expose students to problems of diversity. As students move beyond their local communities to universities or diverse

work settings, they are increasingly exposed to heterogeneous value systems. As a result of these experiences, students are able to expand upon their Stage 3 concerns of interpersonal relationships and move towards integrating more complex social systems into their moral reasoning. Their old ways of making sense of the world become no longer adequate, and they learn to reason about moral dilemmas in a more complex way (Mason & Gibbs, 1993).

Finally, college has long-term effects on the moral development of students; growth continues beyond the years of college attendance. A longitudinal study by Rest and Deemer (1986) followed the DIT P-score changes in high school graduates who attended college in contrast with high school graduates who did not attend college. The DIT was administered to the participants four times over a ten-year period. The college group had higher initial P-scores than the other group, but during the study period, this initial difference doubled. The group of participants whose highest level of formal education was high school had P-scores which tended to plateau two-to-four years after their high school graduation, while the college group's scores continued to increase throughout the ten year period. The most significant increases in scores occurred during the first four years of the study, a time which generally coincided with the years of college attendance.

Conclusion.

The purpose of the preceding section was to present an overview of Lawrence Kohlberg's theory of moral development. The validity of the model was demonstrated through both longitudinal and cross-cultural research . A review of studies which examined the effects of college on the moral development of students was presented.

Perry's Scheme of Intellectual and Ethical Development.

The model of William Perry (1970; revision, 1981) developed as a result of a longitudinal study conducted through extensive interviews with male undergraduates at Harvard University. Perry sought to describe the structures ". . . which students explicitly or implicitly impute to the world, especially those structures in which they construe the nature and origins of knowledge, of value, and of responsibility" (1970, p. 1). These structures transcend content and therefore do not depend upon social or cultural context. The model or scheme describes the nine positions through which intellectual and ethical development is achieved; Perry asserted a developmental sequence of structures that unfolds in a logical order, so that individuals who are at different stages of development have different views of the nature of knowledge and authority. Broadly, the model describes how students move from a "dualistic, right-wrong, black-white way of thinking about the world to a more committed and empathetic way" (Buczynski, 1991, p. 213).

The scheme represents a continuum of development along a nine position sequence. Perry has described the continuum as being comprised of two major parts, with Position 5 being the pivotal stage dividing the two. Prior to Stage 5, an individual views the world through a dualistic lens; knowledge is perceived as dichotomous. At Stage 5, however, an individual has progressed to the recognition of the existence of multiple perspectives, and views these as relative, contingent, and contextual. Following this recognition, the individual is able to develop in ". . . orienting himself in a relativistic world through the activity of personal Commitment" (Perry, 1970, p. 57). The positions have been grouped by Perry into three general categories, and are presented in Table 3.

Level 1 was termed Dualism Modified. (Positions 1-3). Students who think dualistically tend to perceive issues in a clear cut, black-white manner. Because they believe that they do not have the ability to make decisions or solve their own problems. they instead look to an Authority who can supply them with The Answer. Knowledge is viewed as either right or wrong answers, and learning is therefore a matter of obtaining these right answers from an Authority. Learners at the dualistic stage need highly structured learning environments. Students are anxious and uncomfortable when presented with open classrooms, diversity, or uncertainty. Students at this level are not able to recognize multiple perspectives; therefore interpretive tasks, essays, and compare-and-contrast exercises are difficult and confusing. Students place a high value on evaluation, and pay great attention to procedural instructions.

At Level II, Relativism Discovered (Positions 4-6), students have recognized that knowledge is relative and contextual, but continue to believe in a primarily external locus of control. They begin to develop analytical and critical thinking skills. As students believe that all opinions are equally valid, they may show resistance to choose any alternative at this stage (Pascarella and Terenzini, 1991).

At Level III, Commitment in Relativism Developed (Position 7-9), students have recognized for the first time that their way of thinking and ideas are valid, and have become committed to their own personal belief system and way of processing information. While placing importance on their own views, they also recognize and appreciate that others have alternative perspectives from their own. Those who have reached the highest level of development feel responsible to society for their actions and behaviors.

Table 3

Perry's Scheme of Intellectual and Ethical Development

At Position 1 (Basic Duality), the individual assumes that the world is structured in dualistic categories, and does not question or examine this assumption. Obedience and conformity to what is right or what the Authority wants is valued by the individual at this stage.
At Position 2 (Multiplicity, Prelegitimate), multiple perspectives are recognized, but are perceived as exercises which an authority figure has developed to assist students in learning how to find the Truth. The individual believes that the authority has the answer, but is not willing to provide it to students.

At Position 3 (Multiplicity, Subordinate), the individual sees diversity and uncertainty as legitimate and unavoidable, but there is still a belief that the Truth does exist. The individual attributes uncertainty to the inability or unwillingness of an authority to show him or her the Truth. The student may grow angry or dissatisfied with the authority because he or she feels that the authority figure is poorly qualified and does not know the Answer.

Position 4 (Relativism Subordinate) was the modal developmental position of the original Perry longitudinal study at the time students were interviewed during the spring of their freshman year. The individual at this position sees uncertainty and diversity as extensive, and begins to think relativistically; however, this new way of thinking is seen by the student as a way to conform to what the Authority wants. Students see relativism as a way of thinking about certain problems which involves the consideration of more than one factor or approach to solving a problem, yet this manner of thinking is "seen as an item in the context of 'what They want' " (Perry, 1970, p. 101).
Perry terms **Position 5 (Relativism)** a "revolution," in that the student begins to view all values and opinions as relative. The student begins to ask, "Is everything relative?" (Perry, 1970, p. 115).
Position 6 (Commitment foreseen) involves the student gradually beginning to see the need to make some form of commitment in an effort to orient him or herself in a relativistic world. Relativism becomes overwhelming, and the student realizes that personal commitment is necessary.

At **Position 7 (Initial Commitment)**, the student makes an initial commitment in some area, with initial acceptance of the implications of this decision.
A student at **Position 8 (Orientation in Implications of Commitment)** experiences more fully the implications and consequences of his or her commitments, and begins to explore the subjective and stylistic issues of personal responsibility.
At the highest Position **(Position 9, Developing Commitment)** the individual experiences identity development through commitment to multiple responsibilities, and realizes commitment is an ongoing, unfolding activity through which to express lifestyle and identity.

Note. From Perry, 1970

Process of Change.

In explaining the process of change, Perry viewed students' primary developmental task as a reorganization of their conceptualizations of knowledge and truth in increasingly complex ways. Through the rejection of the idea that truth is absolute and definitive, then accepting that knowledge is relative and uncertain, the student can only then develop a value system based on personal commitment. The view of authority progresses along the continuum from a vertical representation of authority based on power and hierarchy to a horizontal one based on reciprocity and exchange (Lavallee, Gourde, & Rodier, 1990, p. 409). This shift is a difficult transition, as ". . . admitting uncertainty means facing insecurity- an existential challenge not readily dealt with" (Lavallee, Gourde, & Rodier, 1990, p. 409). Students must grapple with the issue of responsibility for their lives, and they may struggle with the question: ". . . if I all I have been taught up to now is open to question, then my sense of who is responsible shifts radically from outside to me" (Perry 1970, p. 34).

Perry believed that the goal of college is to help relativistic students learn how to make intellectual and personal commitments. College can promote intellectual and ethical development as proposed by the Perry scheme, as students encounter a new and challenging environment in which they are brought into contact with diversity and multiple world-views. Students may learn to relativize previous beliefs, but many students continue to rely on an authority for the answers. As asserted by Lavallee, Gourde, and Rodier (1990), it is easier for students to conform to institutional demands rather than take a personal stand, especially if the institution values homogeneity in student beliefs and behaviors. For students to make the transition to positions of

commitment, they must accept responsibility for themselves, rather than conforming to the standards of others. "To be able to break with others' views necessitates more than simple knowledge: it requires maturity, character and autonomy which can only be achieved with experience, critical reflection, and a sense of responsibility- processes which few people seem to actualize" (Lavallee, Gourde, & Rodier, 1990, p. 410).

Validation of model.

Studies which have examined the relevance of Perry's model to assess college student development have shown a consistent significant relationship between level of education and position (Stephenson & Hunt, 1977; Widick, Knefelkamp, & Parker, 1980; Lavallee, Gourde, & Rodier, 1990). Development seems to slow down at mid-scale: in general, only about 25 percent of student subjects reach higher positions (Lavallee, Gourde, & Rodier, 1990). Harris (1984) tested 202 female college students using the Perry scheme, and found that 75 percent of women were reasoning at positions of Multiplicity. The remaining 25% were Relativistic and, of those, only 5 percent were at positions of Commitment. In determining their developmental position, only level of education was found to be a significant predictor. These results are consistent with the Perry continuum, and provide support for the model's applicability to both men and women.

In an expansion of the Perry scheme, some researchers have looked specifically at reflective judgment in intellectual development (Kitchener & King, 1990; Baxter-Magolda, 1992). This model describes a sequence of changing epistemologies, which refers to students' assumptions about the nature of knowledge including its limits, certainty, and the criteria for knowing (Kitchener, 1983). Students' assumptions about

knowledge are reflected in the strategies they use to gain knowledge; these in turn affect the adequacy with which students can solve complex and controversial problems (Mines, King, Hood, and Wood, 1990). A longitudinal study which examined the effect of college on the development of reflective judgment was conducted by Kitchener and King (1990). They matched two groups, one attending college and the other not attending college, on academic ability and age. Those who did not attend college did show gains in reflective judgment, but those who attended college showed gains which were significantly larger than those of the other group. Since both groups had been matched for academic ability and for age, this study provides support for the notion that college does promote epistemological development.

Baxter-Magolda (1992) asserted students use assumptions about knowledge and values not only to make meaning of their academic experiences, but of their co-curricular experiences as well. She stated that "students interpret co-curricular experience from the vantage point of these epistemologies, and the experience simultaneously affects their assumptions" (p. 204). She felt that it is therefore important to understand students' ways of knowing as a precursor to understanding all aspects of student life.

In a qualitative, longitudinal study, she analyzed changes in students' knowing through in-depth interviews throughout their years in college. She examined co-curricular influences on students' lives and reported findings according to their epistemological levels. Findings were classified in levels based upon Perry's (1970) scheme and her own Epistemological Reflection model (Baxter-Magolda, 1992). Students classified within the first level, termed absolute knowers, assumed that knowledge is certain and could be obtained from an authority figure. At the second epistemological level, the transitional

knower believed that knowledge is only partially certain. Learning changed from a process of acquisition to understanding, and peers played a bigger part in exploration of knowledge. At the third level, independent knowers viewed learning as a matter of independent thinking and developing one's own perspective (Baxter-Magolda, 1992, p. 204).

In her interviews, the author found that absolute knowers' themes in describing their college experiences revolved around adjusting to college and experiencing it correctly. Absolute knowers "recognized that they were on their own but seemed unaware that they had shifted reliance on parents to peers and campus authority figures" (p. 210). Transitional knowers' themes revealed increased independence, and peer influence was highly valued as faith in authorities became less absolute. Independent knowers' interview themes involved an even greater emphasis on thinking and functioning independently. The independent knowers ". . . transcended the influence of peers by discovering their own voices " (p. 210). Certain experiences such as exposure to different cultures or different perspectives among peers facilitated this new way of knowing the world. By encountering and grappling with diversity, these knowers gained insight and learned to value diversity.

This relationship between acceptance of diversity and development has been further expanded by Glover (1994). She studied the influence of epistemological and moral reasoning on prejudicial attitudes. Based on Perry's (1970) scheme of intellectual and ethical development, she hypothesized that as an individual moved away from the dualistic positions and towards forms of multiplicity and relativism, a greater acceptance of individual differences would develop.

She also related Kohlberg's moral reasoning theory to prejudice; she wanted to examine whether individuals using higher levels of moral reasoning would place a greater value on diversity. Using the DIT (Rest, 1979) to measure moral reasoning , and the Learning Environment Preferences (LEP) test (Moore, 1990) to measure the Perry (1970) model, she found that the university students in her sample who possessed a higher level of education and who employed a higher percentage of relativism in their decision making also possessed more positive attitudes towards minorities. Principled moral reasoning was not a predictor of attitudes towards minorities, but correlation analyses revealed principled moral reasoning to be significantly ($p<.01$) positively correlated to positive attitudes towards minorities. Glover explained this as a problem of multicollinearity; the variance explained by the level of principled moral reasoning was simultaneously explained by other factors that were significant predictors of attitudes. She asserted her findings indicate that environments which promote a plurality of viewpoints and value systems are also likely to promote positive attitudes towards minority groups.

Conclusions.

An overview of the Perry scheme of intellectual and ethical development was described in this section. The section included an outline of Perry's scheme of three levels and nine positions of development. Perry viewed students' primary developmental task as a reorganization of their conceptualizations of knowledge and truth in increasingly complex ways. Perry therefore believed the goal of college is to help relativistic students learn how to make intellectual and personal commitments. Studies were reviewed which demonstrated the development of epistemological reasoning throughout the four years of college.

College student development and Co-curricular experiences

Other studies have examined variables contributing to college student development. Research has examined the influence of student involvement in co-curricular activities, including organized activities, employment, and membership in Greek organizations. Williams and Winston (1985) utilized the Student Developmental Task Inventory (Winston, Miller, and Prince, 1979) to assesses developmental task achievement in three broad tasks: Developing Autonomy, Developing Purpose, and Developing Mature Interpersonal Relationships. These tasks are subdivided into nine sub-tasks: emotional autonomy, instrumental autonomy, interdependence, appropriate educational plans, mature career plans, mature lifestyle plans, intimate relationships with opposite sex, mature relationships with peers, and tolerance. The authors used a sample of traditionally-aged college students at a single institution and examined their participation in organized student activities and work, and how this involvement contributed to their development. They found the means for those students who participated in organized student activities were significantly higher on the Interdependence, Appropriate Educational Plans, Mature Career Plans, and Mature Lifestyle Plans sub-tasks than for students who did not participate in activities. No differences were found on the other sub-tasks. The means on the Mature Relationships with Peers sub-task for students who were employed were statistically higher than for unemployed students. On the Mature Relationships with Peers sub-task, students who worked but did not participate in activities had the highest mean, followed by students who worked and participated in activities, students who did not work but participated, and students who neither worked nor participated.

In interpreting these findings, Winston and Williams (1985) concluded students who do not participate in co-curricular activities are developmentally less mature than participants. This conclusion is tempered, however, by the finding that participation in organizations with peers does not necessarily promote development of mature peer relationships; ". . . in fact, some student organizations may support continuation of late adolescent peer relationships, which are often subject to the pressures of conformity to group norms and emotional insecurity" (p. 58).

As research indicates that participation in social organizations promotes growth in various areas of college student development, it has also been hypothesized that Greek organizations would be among those organizational affiliations which promote development. There is controversy as to whether Greek affiliation promotes identity development in members, provides training in interpersonal relationships, encourages same-sex friendships, develops leadership skills, and renders service to the college and community, or instead encourages conformity and superficiality (Marlowe & Auvenshine, 1982; Hughes & Winston, 1987).

In a study which examined the impact of fraternity membership on members' values and development, Hughes and Winston (1987) examined fraternity pledges before and after their pledging period using a measure of interpersonal values. While pledges and non-affiliated peers did not differ significantly in interpersonal value systems before the pledging period, they found differences between the groups in a post-test after the pledging period. They found that pledges came to value independence and freedom in interpersonal relationships less and to value leadership more than did their non-affiliated peers. In addition, after their pledge period, new members' values came to be almost

identical to those of members who had been affiliated with the group for a year or more. While the results of this study have only limited generalizability as the study included an all white, male sample at one university, this finding has powerful implications for the pledge education process, as it seems that new members in this study incorporated the values of the group during the pledging period. It also follows Winston and William's (1985) conclusion that some collegiate organizations emphasize conformity of interpersonal values and therefore do not promote development of autonomy.

Kilgannon and Erwin (1992) examined the moral reasoning (as measured by the DIT) and identity development (as measured by the Confidence component of the EIS) of Greeks and Non-Greeks by gender at one institution. A random group of entering freshmen completed the tests, and the students were retested at the end of their sophomore year. The researchers then identified those in the group who had joined a fraternity or sorority. While controlling for differences in freshmen scores, Non-Greek sophomore women had the highest average DIT scores, followed by Greek women, then non-Greek men, and lastly, Greek men. On the Confidence component, Greek men scored significantly lower than did non-affiliated women, men, and Greek women. The authors acknowledged these findings do not imply causality between Greek membership and lower levels of moral and identity development, as there may have been other factors involved in student development which influenced the results. Another limitation of this single institution study which the authors did acknowledge is that the findings may be limited to the particular institution at which the study was conducted, and generalizations should be made with caution. With the acknowledgment of these limitations, Kilgannon and Erwin (1992) suggested that Greek affiliation retards the development of self-

confidence in men, and that Greek affiliation may be restricting the development of moral reasoning abilities in both men and women. They suggested that peer pressure might be affecting this area of development. Freshmen and sophomores may adopt the cultural norms of Greek organizations without questioning those norms. Students who experience the pressure to conform to group norms and are able to challenge the norms may choose to resign from the group; these students were not contacted in the Kilgannon and Erwin study. Previous research has shown that ex-Greeks (students who either resigned from or were inactive in their fraternities or sororities) were found to have changed more in values than either active Greeks or independents (Wilder, Hoyt, Shuster, Wilder, & Carney, 1986). Perhaps students who disaffiliated held values that conflicted with the values of the fraternity or sorority. Additionally, it would be interesting to complete this longitudinal study throughout the four years of college; perhaps these developmental lags which occur in Greek members are offset in the last two years of college.

Cohen (1982) suggested the members of Greek organizations possess highly similar values, which may influence their progression in identity development. While they have passed beyond dependence on parents, they may have transferred this parental dependence to reliance on peer influence. Cohen also cited Kohlberg's theory of moral development as applied to college student development. She argued that if persons make the shift from Stage 3 to Stage 4, it usually occurs after high school. In Kohlberg's longitudinal studies, two necessary experiences were cited that seemed to influence this transition: leaving home and entering a college community with conflicting values, and, second, personal experience involving questioning and commitment in combination with the stimulation to reflect on moral dilemmas (Kohlberg, 1973, as cited in Cohen, 1982).

She stated that due to their sharing similar experiences in similar environments with their peers, members of Greek organizations may not be having the "upending" experiences necessary to trigger the transition from conventional to principled thinking, nor to progress in identity development.

Conclusion.

This section reviewed literature regarding college student involvement in co-curricular experiences, and described how this involvement influences development. Research suggests that involvement in activities can promote development because students are exposed to multiple perspectives through social interaction. However, some studies suggest student involvement in organizations in which homogeneity in beliefs and values is stressed may retard rather than enhance psychological development.

Summary

In summary, college student development literature has been greatly influenced by the theories of Chickering, Kohlberg, and Perry. College students are in a transitional period between a primary concern with the approval of others (usually the peer group), towards a focus on emotional and cognitive independence (Sottile, 1994). Ideally, the college years are a time during which students move away from reliance on others as a basis for making decisions about themselves and the meanings they attribute to the world. Instead, they begin to accept personal responsibility, and the consequences which accompany this responsibility. The college environment can contain the upending experiences necessary for growth towards autonomy and responsibility; however, college attendance itself is not sufficient for this growth to occur. Development will not

automatically unfold as a result of academic achievement. According to research, those students who progress to higher developmental levels are those who choose activities and experiences in which they are exposed to multiple world views, diversity, and models of higher order processing, and are encouraged to choose from among this array of alternatives by committing to a personal belief and value system.

College Student Alcohol Consumption Patterns

An important issue in college student life is the use of alcohol. Alcohol usage patterns influence a student's choice of peer group, social interactions, and self-concept, which in turn affect a student's development during the college years. The purpose of this section is to review relevant research in alcohol usage patterns in college students, and to specifically examine differences between students who are abstainers, drinkers, and binge drinkers. Studies have shown that binge drinkers differ in significant ways from moderate drinkers and abstainers. This study will attempt to extend the research in this area by examining the relationship between drinking patterns and college student development. Specifically, the present study will examine developmental differences in the domains of moral, intellectual, and identity development in college students in terms of alcohol consumption patterns.

Overview of Alcohol Use Research

The use of alcohol and other drugs on college campuses is of ongoing concern to campus officials and others because it has become increasingly connected with health, academic, and behavioral problems among college students (Wechsler et al.,1995). In efforts to determine the extent of the effects of alcohol use on campuses nation-wide, the

Center on Addiction and Substance Abuse at Columbia University (CASA Commission, 1994), the Core Alcohol and Drug Survey (1995, n = 58,625), and the Harvard College Alcohol Study (Wechsler et al.,1994, n = 17,592) examined the wide ranging health and behavioral consequences of alcohol use on college campuses. The Core survey (Presley, Meilman, & Lyerla, 1995) reported that nation-wide, the average number of drinks consumed by college students per week was 4.6, with men consuming 7.5 and women 3.2 drinks per week. Eight percent of college students indicated that they consumed 16 or more drinks per week, on average.

In examining the health-related consequences of alcohol, the CASA (1994) report stated that the number of college-student emergency room admissions for alcohol poisoning has increased 15 percent during the past five years. Sixty percent of college women diagnosed with a sexually transmitted disease were intoxicated at the time of infection. Further, at least 20 percent of college students abandon safe sex practices when drunk that they would normally use when sober, which puts them at greater risk for HIV infection, sexually transmitted diseases, and unplanned pregnancies. Fifty percent of students reported they had been nauseated or had vomited as a result of their alcohol or other drug use during the past year, and 62.8 percent reported having had a hangover.

Alcohol use is also highly correlated with academic problems on campus. Poor grades are correlated with alcohol use; alcohol is implicated in 40 percent of all academic problems (CASA, 1994). When comparing self-reported grade point average (GPA) and average number of drinks per week, the Core survey results show that a student with a GPA of "A" drinks 3.3 drinks per week, a "B" GPA, 5.0 drinks per week, a "C" GPA an

average of 6.6 drinks per week, and a student with a "D" GPA reported drinking an average of 10.1 drinks per week.

Other academic consequences of using alcohol and other drugs are widespread among American college students. Twenty-three percent reported having performed poorly on a test or important project, and 30.2 percent had missed a class as a result of alcohol use (Presley, Meilman, & Lyerla, 1994).

Behavioral consequences which are highly correlated with alcohol use on campus include date rape, sexual assault, hazing, car accidents, and injuries (Johnston, Bachman, & O'Malley, 1991). Ninety percent of all violent crime on campus is alcohol related, and 80 percent of vandalism on campus is related to alcohol use (CASA, 1994). Thirty-five percent of Core Survey respondents reported driving while under the influence of alcohol, and 30 percent reported using alcohol to the point of inducing blackouts. Thirty three percent of students had experienced an argument or fight as a consequence of using alcohol or other drugs, 39 percent reported having done something they later regretted, and 30 percent had been criticized by someone they knew as a result of their alcohol or drug use (Presley, Meilman, & Lyerla, 1994).

In examining alcohol use, recent research has focused on consumption patterns rather than the traditional quantity-frequency (QF) approach (Strauss and Bacon, 1953) which examined total alcohol consumption as opposed to patterns of heavy, episodic drinking. The definition for heavy episodic drinking, or binge drinking, which is used by current researchers, has been defined using Blane's (1977) definition of binge drinking: five or more drinks in one sitting for both males and females.

College students are in the age group that has the highest rate of binge drinking. Presley, Meilman, and Lyerla (1994) reported binge drinking is more frequent in college students (42%) than in non-college students (33%). Three major nation-wide surveys have examined the extent of college student binge drinking, and have obtained remarkably similar results. Presley, Meilman, and Lyerla (1994) reported 42 percent of students having binged in previous 2 weeks, with 28 percent reporting 2 or more binges. The Institute for Social Research of the University of Michigan (Johnston, Bachman, & O'Malley, 1991) found that 40 percent of college students were binge drinkers. By selecting 140 participating colleges to represent a cross-section of American colleges and universities, Wechsler et al. (1995) classified 44 percent of college students as binge drinkers. Fifty percent all male students and 39 percent of all female students were binge drinkers; nineteen percent of these students had binged three or more times during the past two weeks.

Wechsler et al.'s survey (1995) also used a gender specific measure of binge drinking. Wechsler cited that using the same standard for binge drinking for both sexes underestimates binge drinking and the subsequent health risks for women. In his study, when controlling for body mass index, women who typically drank four drinks in a row were found to have the same likelihood of experiencing drinking-related problems as men who typically drank five drinks in a row. It seems that there is a need for a lower standard for defining binge drinking for women than for men. The Core Alcohol and Drug Survey. however, continues to use the same cutoff standard for both men and women.

Binge drinking is indicative of a drinking style characterized by more frequent drinking (drinking on 10 or more occasions in the past month), more frequent

intoxication (3 or more times during the past month), and drinking to get drunk (Wechsler et al., 1994). Nineteen percent of students are classified as frequent binge drinkers, generally defined as engaging in binge drinking three or more times during the past two weeks. According to Wechsler et al.(1995), 47 percent of frequent binge drinkers experienced four or more different problems as a result of their own drinking, compared to 14 percent of bingers, and 3 percent of drinkers. Examples of these problems in the areas of academics, health, and behavioral problems include positive responses to the following statements: "did something I later regretted"; "forgot where I was or what I did"; "getting behind in school"; "missed a class"; engaged in unplanned sexual activity"; "drove while intoxicated"; or "got hurt or injured".

The Wechsler et al. (1995) study classified colleges by levels of binge drinking: at low-level schools, 35 percent or fewer students report binge drinking; at mid-level schools 36-50 percent of students binge; and at high-level schools, 51 percent or more of students engage in binge drinking. Students who are not heavy drinkers are adversely affected by binge drinking on campus, especially at high binge level schools. The study indicated that the likelihood of a student experiencing negative effects of another student's binge drinking (i.e., been insulted or humiliated; pushed, hit or assaulted; had property damaged; "baby-sat" a drunk student; had sleep/study interrupted; experienced unwanted sexual advances; sexually assaulted or raped) was 3.6 times greater at a high binge-level school as compared to a school with a low level of binge drinking. Wechsler called for students experiencing these second hand effects of binge drinking to stand up for their rights; an environment in which these behaviors occur can be transformed ". . .

from one of a congenial academic setting to one where the quality of student life is degraded and scholarship is undermined" (Wechsler et al., 1995, p. 634).

Conclusion.

The preceding section presented an overview of college student alcohol use. Alcohol use has become an increasing concern to college faculty and administrators because its use has become increasingly associated with behavioral, academic, and health-related problems. Current research in alcohol use focuses on alcohol consumption patterns rather than quantity or frequency of use. Binge drinking, defined as the consumption of five or more drinks in one sitting, is the currently used indicator of a drinking style that is highly associated with the negative consequences of alcohol use.

Research in the Correlates of Binge Drinking

Research indicates that student drinking choices reflect a complex interaction between both person (e.g., attitudes. expectancies) and social/ environmental (e.g., peer influence) variables (Martin & Hoffman, 1993). In a comprehensive review of the literature between 1975 and 1985 concerning problem drinking among college students, Berkowitz and Perkins (1986) identified several distinctive characteristics of problem drinkers. In their review, problem drinkers were characterized as individuals who engage in heavy consumption of alcohol, generally defined as weekly consumption of five or more drinks per occasion, and who tend to become intoxicated more than once per week or for the majority of drinking occasions. The standard of problem drinking for Berkowitz and Perkins is similar to the binge drinking standard used in current literature. Based upon the alcohol literature, they found additional correlates of problem drinking:

1.Self-identified problem drinking. While only a minority of students meeting the other criteria of problem drinking are likely to acknowledge their own alcohol abuse, this correlate has been associated with other indices of problem drinking.

2. Negative drinking motivations. Problem drinkers tend to drink not for purely social reasons but as a method of escape. Escapism is often reported as "drinking to get drunk" and is a strong predictor of problem drinking.

3. Negative consequences of drinking. These are reported as interpersonal altercations, property damage, negative effects on academic performance, damaged relationships, regretting behavior while drinking, blackouts, and, for men, fights or trouble with authorities.

4. Problem-prone personality. This personality type includes a lowered impulse control, greater proneness to deviant behavior, and lowered expectations of academic success.

5. Family and peer environments. Heavy drinkers are more likely to have a peer group in which heavy drinking is the norm. These individuals are likely to have had problems with family structure, communication, and intimacy as a result of their problem alcohol use in high school and in college.

6. Later life problem drinking. Overt alcohol problems, such as excessive consumption or negative consequence of use, were less predictive of later problems of use than was the extent of psychological dependence on alcohol use as a coping mechanism extending across multiple areas of life functioning (Berkowitz and Perkins, 1986).

A more recent study by Wechsler and Dowdall (1995) based upon a large sample which was statistically representative of institutions of higher education nation-wide, reported correlates of binge drinking in several areas. Demographically, being male, single, under the age of 24, White, and having parents who were college educated, were all predictors of whether or not an individual was a college student binge drinker. Academically, bingeing was linked with having a B average or lower, and a major in business. Wechsler and Dowdall (1995) also found that one of the strongest predictors of binge drinking was viewing parties as "very important". Another attitudinal item correlated with bingeing was reporting religion to be "not at all important". Further, those who reported that athletics were "very important" were also more likely to be binge drinkers than other students. Additionally, Wechsler found that students who engaged in binge drinking reported risky behaviors (e.g., smoking cigarettes, using marijuana in the month prior to the survey, and having several sex partners during the preceding month) than were other students.

Other studies have examined correlates of binge drinking related specifically to self-concept. In a 1987 study, Snortum, Kremer, and Berger surveyed a sample of 120 college students from four different institutions to examine the self-concept and social image of heavy drinkers (defined through a quantity/frequency ratio). Compared with men who reported being light to moderate drinkers, men classified as heavy drinkers rated themselves significantly higher on a scale measuring self-concept. They viewed themselves as being more masculine, successful, sophisticated, strong, mature, sociable, excitable, adventurous, and aggressive. Since the survey results were self-reported, Snortum, Kremer, and Berger (1987) noted that these men may not actually possess these

traits. No significant differences were found between the self-reports of self-concept for women who were heavier drinkers and those who were light to moderate drinkers. Combining the male and female ratings, results showed that heavy drinkers described other male and female drinkers as more savvy, sociable and adventurous than did the lighter drinkers. The heavy drinkers (especially men) also tended to derogate nondrinking men as not being masculine, but did not view nondrinking women negatively.

Edmunson, Clifford, Serrins, and Wiley (1994) also examined the relationship between self-concept and self-reported levels of drinking in a college student sample (n=1,049). Their sample appeared to match national norms for college students concerning drinking patterns; over 50 percent of students reported having had two or more drinks in the past month, and 36% reported that they usually consumed five or more drinks in one sitting. Given the number of theories that assume that heavy drinking is associated with low self-esteem, and since the sample contained a substantial number of individuals who regularly engaged in heavy drinking, the authors expected to find a significant relationship between heavy drinking and low self-esteem. Contrary to their initial hypothesis, they found that heavy drinking (defined as drinking five or more drinks in one sitting on a regular basis) was not related to low self-esteem. The only measured variable of self-concept that was significantly correlated with alcohol consumption was self-perception of low academic ability. The authors concluded that heavy drinking was not related to low self-esteem for the college students in this sample. Another explanation for the findings is that the definition used for heavy drinking was inappropriate (i.e., the criterion for heavy drinking was set too low). However, the definition for heavy drinking in the study was also one used in many studies to define binge drinking. It seems possible

that binge drinking and self-esteem are not related in the college sample, because binge drinking is regarded as normative behavior, and those who binge drink are conforming to this norm. Students' drinking styles enable them to perceive themselves as fitting in with the norms of the campus (Edmunson et al., 1994).

Nezlek, Pilkington, and Bilbro's (1994) study sheds more light on this relationship. They examined binge drinking and social interaction among college students at the College of William and Mary. College students in the study used a social interaction diary to provide a measure of their social activity, and were also asked to record their total alcohol consumption and frequency of binge drinking. Because alcohol consumption is a normative behavior for college students (Presley & Meilman, 1992; Wechsler et al., 1995), the authors hypothesized that active, rewarding social lives would be associated with moderate levels of alcohol consumption rather than with low levels of consumption, high levels of consumption, or abstinence. They found relationships between intimacy and frequency of binge drinking, but there was no association between intimacy and total alcohol consumption. Using different cut-off levels for men and women, students were classified into three categories according to their reported drinking patterns: men and women with no episodes of bingeing during the week of the study were in the no-binge category; women with one episode or men with one or two episodes were in the low-binge category; and women with two episodes or more per week and men with three episodes or more per week were classified in the high-binge range. In general, students who engaged in binge drinking experienced more intimate interactions than did students who did not binge. For the men in the study, high levels of binge drinking were

negatively associated with intimacy with peers and opposite-sex relationships; this association was not found for women.

When the data were analyzed to examine relationships between intimacy in interactions with romantic partners, gender differences were found between high level binge drinking men and women. Men in the frequent binge category reported that their partners were less responsive, and the relationships less intimate, than did any other group. Women who engaged in binge drinking three or more times per week, however, were more likely to rate their relationships as more responsive and intimate. Men and women who binged more than three times per week had less contact with their romantic partners than did men or women who binged moderately or not at all.

In explaining their results, Nezlek, Pilkington, and Bilbro (1994) asserted that students view binge drinking as normative and desirable, as bingers reported more disclosure and intimacy than did those who did not binge. According to the authors, persons who did not binge may not have been as well integrated into the campus community because they were not behaving in a socially normative manner. "Occasional binge drinking may serve as evidence that an individual is relaxed, is easy to get along with, and is someone with whom one can have a good time . . . and students who do not binge drink may be seen by their peers as more reserved, anxious or controlled (i.e., someone with whom it would not be that easy to have a good time)" (p. 349).

While this study was conducted at a single institution which may not be reflective of college students in general, it examined the relationships between social interaction and alcohol using alcohol drinking patterns rather than the more traditional approach of total alcohol consumption. Given these findings, future research may be guided in this

direction, as patterns of drinking in college students in this area are seemingly more useful than examining alcohol consumption quantity or frequency. In this study, it was found that those persons who binge were those most likely to have intimate, close relationships with same sex friends, opposite sex friends, and in romantic relationships. Students who engaged in drinking patterns outside of the group norm (no-binge or high binge) reported less interactive and satisfying relationships.

A longitudinal study by Shedler and Block (1990), further demonstrates the relationship between psychosocial adjustment and substance use. Their study was conducted with adolescents who had initially been recruited for the study at age three. They were assessed on a battery of intstruments at ages 3, 4, 5, 7, 11, 14, and 18. At age 18, those students who had experimented with marijuana (reported they had used pot "once or twice," "a few times," or "once a month," and who had tried no more than one drug other than marijuana) were classified as Experimenters. Abstainers were defined as those students who had never tried drugs. Frequent Users were defined as students who reported frequent use of marijuana, and who had tried at least one drug other than marijuana.

Based on longitudinal results, the Experimenter group was found to have the best overall psychological adjustment, compared to both Abstainers and Frequent Users. Abstainers tended to be relatively anxious, emotionally constricted, and lacking in adequate social skills. The profile of a Frequent User was one of a student with ". . . interpersonal alienation, poor impulse control, and manifest emotional distress" (Shedler & Block, 1990, p.612). Given that adolescence is a time for experimentation with new roles and behaviors, the authors concluded that experimentation, including

experimentation with marijuana, can serve as an important developmental function. According to Shedler and Block (1990):

> It is not surprising that by age 18, psychologically healthy, sociable, and reasonably inquisitive individuals would have been tempted to try marijuana . . . . indeed, not to do so may reflect a degree of inhibition and social isolation in an 18-year old. (p.625)

Perhaps this inverted U-shaped relationship between psychological adjustment and adolescent drug use is similar to the relationship found between social adjustment and college student alcohol use found by Nezlek, Pilkington, and Bilbro (1994).

Research has also been conducted to examine environmental influences on binge drinking. Wechsler and Dowdall (1995) found participating in social activities (e.g., living in a coeducational dormitory, having five or more friends, or having a roommate) was significantly associated with binge drinking. Those students who spent time on activities such as socializing with friends or participating in physical activities, and who spent fewer hours in studying and volunteer work, were more likely to be binge drinkers . The number of hours spent watching television or videos, however, was not a predictor of binge drinking. These findings have implications for how peer behaviors and norms contribute to college student drinking behavior. Research has indicated that peer substance use is the primary predictor of adolescent and young-adult alcohol use (Sherry and Stolberg, 1987; Cherry, 1987). The Wechsler and Dowdall (1995) findings concur with earlier studies which found that students with a greater number of friends who consumed alcohol tended to drink more than those students with fewer friends who were

drinkers. Also, students who drink in large groups or at large parties tend to drink more than those who drink in small groups or dyads (Berkowitz & Perkins, 1986).

Wechsler and Dowdall (1995) also found that a very strong predictor of bingeing was residence in a fraternity or sorority house. They reported that members of Greek organizations engaged in higher levels of binge drinking; 65 percent of women in sororities were binge drinkers, as opposed to 35 percent of female students in general, and 75 percent of fraternity members binged as compared to 45 percent of male students in general. Eighty-four percent of those who resided in fraternity or sorority houses were binge drinkers. More residents of Greek houses report adverse effects of alcohol than do the student population in general. These include poor test scores and missed classes, driving under the influence, arguments, and being criticized for using.

An additional correlate of college student binge drinking is a student's pattern of usage in high school. Whether or not a person indulged in binge drinking as a high school senior was a very strong predictor of binge drinking in college (Wechsler and Dowdall, 1995). Liebsohn (1994) found college and high school drug and alcohol usage patterns were very similar in her college sample. The entering freshmen in her study found new friends much like their high school friends with whom they liked to get drunk. She found that for the college freshmen in her study (n=549), there were no significant differences between the frequency of getting drunk in their senior year in high school and in the first year of college. Even though students had developed new friends at college, they tended to make friends who shared their patterns of drug and alcohol use.

Sherry and Stolberg (1987) examined factors affecting the alcohol use of incoming college freshmen in a single-institution study. They found that of the students in

their sample (n=535), 36% were heavy to very heavy drinkers. The most consistent and potent predictor of the frequency and consumption of alcohol was peer pressure, defined as the relationship of peer and social situations on the consumption of alcohol.

Wechsler, Isaac, Grodstein, and Sellers (1994) closely examined the alcohol consumption patterns of college students from the first to the second year of college. A majority of students (78.4% men and 63.45% of women) who used alcohol during their first year continued to do so during the second year of college. One-third of male students who had not binged during the first year started drinking during the second year of school, while fewer female students (19.3%) did. The authors found those students who did begin drinking during their sophomore year were light drinkers; 100% of men. and 82.7% of women who began to drink as sophomores reported using alcohol less than weekly. Wechsler et al. (1994) therefore concluded that binge drinking is a behavior that most students appear to learn prior to college. Most freshmen binge drinkers (76% of men and 59% of women) reported regularly drinking four or more drinks in high school. In contrast to this pattern, those students who begin to drink in college usually do so less than weekly and drink only one drink per occasion. In comparing this data with high school senior reports of alcohol use (Johnston, Bachman, and O'Malley, National High School Senior Survey, class of 1995), 29.8% of students reported consuming five or more drinks in a row in the two weeks prior to the survey, while 24.0% of tenth graders reported the same pattern.

Canterbury, Gressard, Vieweg, Grossman, et. al. (1990) surveyed first-year students at the University of Virginia one month after their arrival at the institution. Using the definition also utilized by Wechsler (5 or more drinks in one sitting for men, and 3-4

drinks for women), they found that 51.9% of first-year men and 40.4% of first-year women were frequent heavy drinkers. Students planning to join a sorority or fraternity were more likely to be frequent heavy drinkers than those students planning not to join. Frequent heavy drinkers were also more likely to have impaired interpersonal relationships and other psychosocial problems.

These studies indicate a majority of students arrive at college with pre-established patterns of drinking. In line with these findings, Klein (1987) examined changes in students' alcohol use, abuse, and attitudes towards drinking over the course of their four years in college. Expecting to find that students enter college in an adolescent-like phase of development and graduate with more mature attitudes, he instead found that men demonstrated no significant changes in drinking patterns and alcohol-related attitudes over the course of the four years in college. Women, however, changed in their drinking attitudes and behaviors as they progressed through their college years. With each advancing year in school, women reported decreased tolerance of alcohol abuse and decreased levels of alcohol consumption. Men, however, showed no decreases over the four years of school. Klein concluded that perhaps college represents ". . . little more than a period of protracted adolescence for men" (p. 251). This study employed a cross-sectional design which the author does acknowledge as a limitation of the study. There is no way of determining whether the groups were similar at the outset; perhaps levels of alcohol consumption in upperclassmen did decrease over the years in school, but the comparison group of freshmen was more tolerant of alcohol abuse and consumed greater amounts of alcohol. A longitudinal design is necessary to determine these differences more accurately.

Klein made the assumption that development occurs over the four years of college in all aspects of students' lives. He assumed college students' drinking patterns are a reflection of their level of development or maturity, and that their alcohol consumption and attitudes will change as they become more developmentally mature. The developmental literature, however, has not established this link between college student drinking patterns and developmental levels. For Klein to assume that alcohol consumption and attitudes reflect development, research needs to be conducted which will establish this relationship.

One such study which tentatively examined the relationship between moral development and alcohol use was conducted by Berkowitz, Zweben, and Begun (1992). One hundred eleven college students completed the DIT, the Ethics Position Questionnaire (EPQ) of Forsyth and Pope (1984), and a survey of alcohol behavior and attitudes. On the EPQ, the Idealism scale measures a student's view of whether morally acceptable behaviors are expected to result in good consequences; the Relativism scale measures a students belief in absolute versus relative moral principles. They found that stage of moral reasoning was negatively correlated with alcohol use, but did not correlate significantly with the use of other drugs. The Relativism scale was positively correlated to three of the drug-related items. The authors concluded higher stage moral reasoners were less likely to use alcohol and marijuana, but reported no relation between moral stage and use of other drugs. In this study, Relativists were more likely to use marijuana and uppers and to report having been high on drugs; the authors noted that a relativistic ideology is associated with drug use.

Meilman and Gaylor (1989) argued alcohol use can serve several developmental functions in a college student's life. They felt professionals in higher education often ask students to moderate or give up their alcohol usage, but they then need to be mindful of asking students to be different from their peers. Alcohol use can have positive effects in the following areas: first, it facilitates association with the student's peer group, as was observed in the Nezlek et al. (1994) study. Secondly, it allows a student to try out different identities without a commitment to these momentary choices. Thirdly, it can provide a sense of belongingness to a peer group at a time when students want to be connected, but may not know how to achieve this. Fourthly, it facilitates sexual experimentation, whether this is for better or worse. Lastly, it allows for release of tensions resulting from academic pressures and developmental issues (Meilman & Gaylor, 1989).

As noted by Meilman and Gaylor, and by research examining the effects of college student alcohol use on social interaction (e.g., Nezlek Pilkington, & Bilbro, 1995; Edmunds et al., 1994) students who develop drinking styles which are similar to the norm of the campus culture experience a sense of social belongingness. Studies indicate that students who binge drink are likely to feel comfortable in their social interactions, and perceive no need to alter their alcohol-related behaviors. This security, however, may not provide the challenge that is necessary for psychological development.

Wechsler and Dowdall (1995) demonstrated that the best predictors of binge drinking are variables significantly related to students' peer groups: whether a student has friends who also binge drink, views a lifestyle of partying as "very important" and resides in a fraternity or sorority house. It seems that binge drinkers are likely to be those students

who immerse themselves in a homogeneous social environment and therefore are not exposed to problems of diversity. They are not encouraged to make personal commitments, to break with their peers, and to take a stand based upon their own beliefs and values (Lavallee, Gourde, & Rodier, 1990).

Conclusion.

Based on a review of the literature, a portrait of a student who is a binge drinker was described in the preceding section. The section presented an overview of the correlates of college student binge drinking, including the relationship between binge drinking and students' self concept, social interactions, participation in social activities, and patterns of use prior to college. The positive developmental aspects of alcohol use were reviewed. It was hypothesized that students who are immersed in a culture in which conformity to peer norms, including the norm of binge drinking, are less likely to have experienced the conditions necessary to facilitate their ability to break with their peers in order to develop higher-order psychosocial and cognitive structures.

Summary

A climate in which homogeneity in beliefs and values is encouraged will result in a protracted reliance on the peer group (Lavallee, Gourde, & Rodier, 1990; Winston and Williams, 1985; Cohen, 1982). Students in this campus culture will not have the upending experiences necessary for growth towards personal commitment. The experiences which have been found to encourage personal responsibility are clearly different from the identified correlates of binge drinking (Wechsler & Dowdall, 1995).

Research in student development broadly (e.g., Winston & Williams, 1985) has demonstrated that students involved in structured student activities and organizations which encourage exposure to diversity are more developmentally mature than students who do not participate. Studies in intellectual development (e.g., Baxter-Magolda, 1992) have found students interpret their co-curricular experiences differently based upon their level of epistemological development. Those students who progress to higher levels of reflective judgment are able to transcend the influence of peers by "discovering their own voices" (Baxter-Magolda, 1992). McNeel's (1994) meta-analysis of research in college student moral development indicated that involvement in certain co-curricular activities was associated with moral reasoning abilities based upon principled thinking. Conversely, Wechsler and Dowdall (1995) found that students who reported spending fewer hours in studying and volunteer work were significantly more likely to be binge drinkers, and students who rated the importance of academic work, the arts, community service as "somewhat important" or "not at all important" were more likely to be binge drinkers.

In summary, the literature suggests that students who binge drink on a regular basis are likely to experience negative consequences as a result of their drinking in the areas of academics, health, and behavioral problems. Students who are binge drinking three or more times per week are particularly vulnerable to significant negative effects. However, they are likely to have peer groups who engage in these same behaviors, and therefore they do not regard their behavior as unusual; they are rather conforming to the social norm (Martin & Hoffman, 1993). Students who define themselves in terms of adherence to group norms will not question these norms. Students who are at higher

levels of development, however, can feel a greater sense of internal control in determining their lives, may be ready to question the group norms, to reflect upon them, and to decide what is right for them based upon a personally derived value and belief system. This will then translate into more responsible drinking choices which do not result in the negative consequences associated with binge drinking. It was therefore hypothesized that students who choose not to engage in binge drinking will be more likely to have made the transition to higher levels of development in the domains of moral, intellectual, and identity development.

Chapter Three

Chapter Three presents the design and research methodology of the study. The chapter is divided into the following sections:

1. Population and Sample
2. Data Gathering
3. Instrumentation
4. Research Design
5. Specific Null Hypotheses
6. Data Analysis
7. Ethical Considerations

Population and Sample

The target population for this study is college students of traditional age at liberal arts colleges in the United States. The subjects for the study were obtained from an accessible population of students at the College of William and Mary, a selective, liberal arts college in eastern Virginia. According to 1996-97 statistics, the college had in attendance 5,619 undergraduate students, and of these 74 percent lived on campus (n = 4,189). The student population was 58 percent male, and 42 percent female; the mean age of the undergraduate student body was 20.2. The ethnicity breakdown of the population was as follows: 85 Nonresident Aliens; 336 African American students; 12 Native American students; 403 Asian students; 118 Hispanic students; and 4,626 Caucasian

students. The student body at the College was comprised of 1,545 freshmen (27 percent), 1,339 sophomores (23.8 percent), 1,310 juniors (23.3 percent) and 1,296 seniors (23.0 percent). Each participant in the study was a residential, traditionally-aged, undergraduate student currently enrolled at the college.

Data Gathering

The researcher administered the Defining Issues Test, the Scale of Intellectual Development, the Erwin Identity Scale, and the Core Alcohol and Drug Survey by mail to 400 randomly selected undergraduate students during the spring semester of 1997.

The college at which the study was conducted had procedures in place to conduct a randomized administration of the Core Alcohol and Drug Survey to students at the college. A master list of 700 students (300 graduate students and 100 students per undergraduate class) was generated, and all 700 students received the Core Alcohol and Drug Survey by mail. Since the present study was focused upon undergraduate student responses only, the 400 undergraduate students received the entire instrument battery in addition to the Core Alcohol and Drug Survey. Therefore, 400 randomly selected undergraduate students (100 per class) received the Core Alcohol and Drug Survey, the Erwin Identity Scale, and Defining Issues Test, and the Scale of Intellectual Development by mail in February, 1997.

The selected participants received a cover letter from the Office of Student Affairs, which explained the purpose of the Core Alcohol and Drug Survey study, the confidentiality and anonymity of the responses, the importance of responding within the given time frame (see Appendix A). Students additionally received a letter from the

researcher, which explained the purpose of the present study, including an explanation of the additional instruments, the assurance of confidentiality and anonymity, and procedures for obtaining results upon completion of the study (see Appendix A).

In addition, a post card with a code number was included in the mailing packet. Students were instructed to return the post card separately from the instrument battery, so that post card codes could then be matched with a master mailing list to facilitate follow-up mailings. In this way, the researchers tracked the returns on the mailing list while responses remained anonymous.

In summary, each participant received a mailing packet which contained the following documents, listed in order: a cover letter from the Office of Student Affairs, the Core Alcohol and Drug Survey, a cover letter which introduced the three additional instruments, the Erwin Identity Scale, the Scale of Intellectual Development, the Defining Issues Test, a postcard marked with a code number, and a self-addressed, stamped envelope to ensure ease of return.

As the coded post cards were returned, the codes were matched with corresponding names on the master mailing list. Approximately two weeks after the initial mailing was sent, the researcher made phone calls to 200 students who had not responded to the survey. The researcher called each student through the college voice mail system. A message using each student's first name (determined from his or her voice mail greeting) underscored the importance of the research, and asked the student to return the surveys as soon as possible. Students were asked to inform the researcher by e-mail if they wished to receive another survey packet including the Core Survey, EIS, SID, and

DIT. Electronic mail messages were received from six students who indicated their wish to receive another packet.

One hundred fourteen students returned the complete survey packet, including the Core Survey, EIS, SID, and DIT. Because the College wished to have a higher return rate for the Core Alcohol and Drug Survey, the Office of Student Activities generated two additional mailings of the Core Survey (see Appendix A for additional cover letters). After three mailings, the College obtained a 54.8% return rate.

There may be important differences between those undergraduate students who took the time to complete a lengthy testing battery and those who did not respond to the surveys. thus creating a sampling bias. As suggested by Borg and Gall (1989) a small subsample (n=20) of non-respondents should be interviewed to determine if any important differences exist. As the information examined in this study was of a confidential and sensitive nature (e.g., the drinking patterns of college students, most of whom are younger than the legal drinking age of 21), a phone interview was deemed inappropriate as a follow-up technique. The comparison sample was therefore obtained from a sample of 22 students who responded to the Core Survey through a third mailing in April, 1997. The students in the follow-up sample returned the Core Alcohol and Drug Survey only after having received the initial mailing of the complete survey packet, a second mailing containing the Core Survey only, and the third mailing of the Core Survey. in which they were also offered the incentive of having their names entered in a raffle for attractive prizes. The Core Surveys of twenty-two students, who responded to this third mailing two months after the initial mailing, were examined to determine differences between the responses of these students and the 114 students who responded to the complete survey

packet after only one mailing. The groups were compared on the following items: age, ethnicity, class, gender, drinking category, Greek membership, and activity level.

Instrumentation

Defining Issues Test

The Defining Issues Test (Rest, 1979) is a standardized instrument based on Kohlberg's theory of moral reasoning. It produces moral judgment scores that measure the conceptual frameworks that individuals use to analyze a social-moral problem and then judge a proper course of action. It is comprised of three to six moral dilemmas, and a subsequent list of issues that an individual might consider in resolving that dilemma. Individuals are asked to rate and rank the 12 items according to their perceived level of relative importance. A P-index can then be calculated, based upon the importance that subjects attribute to items reflecting Stage 5A, 5B, and 6 (i.e., principled) reasoning. The score is usually expressed in terms of a percentage, which can range from 0 to 95. There are also internal validity scores included in the DIT results: the M-score, the consistency check, and the A-score, indicating an anti-establishment attitude. Rest (1994) reported the wide acceptance of the DIT as a research instrument, as its use has been documented in approximately 1000 studies conducted in over 40 countries.

Reliability and validity trends for the DIT are reported as consistent by Rest (1994); the internal consistency of the DIT is .76. Test-retest correlations over a period of several weeks are around .80. Test-retest correlations of the short form range from .58 to .77, and the P scores of the three-story version have a correlation of .93 with those of the six-story version. The short form (three-story) version was used in this study.

Core Alcohol and Drug Survey

The Core Alcohol and Drug Survey (Presley, Meilman, & Lyeria, 1994) was developed in response to a Fund for the Improvement of Postsecondary Education (FIPSE) call for effective prevention programs in higher education. The agency wished to develop an instrument to assist FIPSE grantees in gathering baseline and trend data regarding the alcohol and other drug use on their campuses to thereby satisfy the FIPSE grant requirement of pre- and post assessment of prevention program effectiveness. The Instrument Selection Committee, representing two- and four-year public and private institutions, designed an instrument to assess the nature, scope, and consequences of student drug and alcohol use, as well as students' awareness of relevant policies (Core Institute, 1997). The questions and response options on the Core Survey were designed to be compatible with other preexisting national data bases (e.g., Monitoring the Future survey conducted by the Institute for Social Research at the University of Michigan, the PRIDE instrument organized by the Parents Resource Institute for Drug Education, and the Center for Disease Control Youth Risk Behaviors Survey) to allow for valid comparisons, so that institutions could compare their data with several national databases. The new instrument came to be known as the Core Alcohol and Drug Survey because it was designed to be the "Core" of a series of studies that could be conducted on individual campuses. The original cohort group was comprised of a sample of 78 institutions (22 two- year and 56 4-year institutions), all of which used representative sampling techniques. Institutions were chosen from four U.S. regions (West, North Central, South, and Northeast), for a sample of 58, 625 students. The Core Survey data base consists of analyses of data from 165 schools with 100,000 individual respondents (Presley, Meilman, and Lyerla, 1995).

The Core Survey normative samples did not consist of random population samples, but instead included samples of convenience at the college level, and random sampling at the individual school level. There exists a potential for bias in estimating population parameters from Core Survey samples, as bias is introduced by selection factors at the college level. McKillip and Dewey (1995) attempted to estimate bias in sampling by comparing population estimates from the Core survey sample to those from differently biased samples. McKillip and Dewey (1995) compared the Core data set with data of the Harvard School of Public Health College Alcohol Study (1995), another multi-college data set. The Harvard (1995) analyses were compiled from 140 schools with 18,000 respondents. The Harvard researchers utilized multi-stage sampling techniques, so that randomization was employed in both college selection and at the individual level. McKillip and Dewey (1995) examined estimates of the two data bases and conducted the following comparisons: binge drinking for men (50.8% for Core; 50% for Harvard); percentage of non-drinkers (13.7% for Core; 16% for Harvard); and percentage of students reporting a hangover (63.1% for Core; 57% for Harvard). The authors concluded that estimates are similar, with the Core Survey revealing slightly higher estimates of drinking and drinking-related behaviors. Overall, while the sampling bias in the Core Survey data should be noted, the survey yields data which are similar to data produced from data collection utilizing a two-stage sampling procedure.

To establish content-related validity, the Core Analysis Grantee Group consulted existing instruments and literature to ensure that major consequences and types of alcohol and drug use were adequately covered by items of the Survey. A panel then reviewed

each item to ensure the instrument sampled all identified domains. The inter-rater agreement for item inclusion was .90.

The survey was pilot tested for student reaction, and analyzed for test-retest reliability. As reported by the Core Institute (1997), the test-retest reliability for the instrument overall is stable and reliable. Data indicated respondents are highly reliable in their answers to the Core survey, as test-retest correlations range from .61 to 1.00.

The Long Form of the Core Alcohol and Drug Survey contains questions in the following topic areas: demographics (i.e., age, year in school, ethnic origin, marital status, and gender); working and living arrangements, academics (including self-reported grade point average, focus of course work, and full or part-time status); perceptions of campus substance abuse policies and their enforcement; average number of drinks consumed per week; frequency of binge drinking; patterns of use of alcohol, tobacco, marijuana, cocaine, amphetamines, sedatives, hallucinogens, opiates, inhalants designer drugs, steroids, and other drugs; age of first use; perceptions of others' use; location of use; consequences of use; family history of substance use problems; desire for an alcohol- and drug-free social environment; participation in extra-curricular activities; beliefs about the effects of alcohol; perceptions about how close friends would feel about use of different drugs; perceptions of harassment and violence on campus; experiences of the secondhand effects of drinking, and perceptions of harm associated with using alcohol and other drugs.

Erwin Identity Scale

The Erwin Identity Scale (1988) is an objectively scored instrument which measures Chickering's vectors of identity. The instrument is comprised of three subscales that constitute the three components of identity. The EIS contains 58 items, and students respond to each statement by indicating on a 5 point scale whether the item is "very true of me", "somewhat true of me", "not sure or neutral", "somewhat untrue of me", or "not at all true of me".

The Confidence subscale indicates an individual's assurance about his or her self-image and capabilities. It includes a conscious self-reliance and a recognition of the necessity of depending on outside sources. Erwin (1978) believed that self-confidence in college students is expressed through feeling comfortable about openly stating personal beliefs, making decisions, and behaving competently, even if action is not yet taken in these areas. An example of an item on this scale is: "My confidence is really shaken when I see so many capable people with abilities as good or better than mine."

The Sexual Identity component of the EIS is a measure of an individual's understanding and acceptance that his or her sexual feelings are natural and normal. Sexual feelings are seen as positive and are not experienced as guilt-inducing or overwhelming. The scale is an indication of acceptance of sexual feelings and does not indicate level of sexual activity. An example of an item on this subscale is "I feel some guilt when I realize how strong my feelings are."

The Conceptions about Body and Appearance (CABA) subscale measures an individual's level of accurate self-perception and acceptance of his or her appearance. The scale score is also an indicator of an individual's acceptance of body and appearance in relation to other people. Individuals with high scores on this scale have likely developed a sense of personal style that is not based upon the dictates of others. An example of an item on this scale is: "I often have uneasy thoughts about the way I appear to other people."

Erwin developed the initial instrument from a large pool of items and constructed the Erwin Identity by administering experimental versions to samples of students at the University of Iowa. Reliability of the EIS has been found to range between .75 and .85 (Erwin, 1988). The Cronbach coefficient of internal consistency coefficients (1951) for the subscales are as follows: the Confidence subscale, .81; Sexual Identity subscale, .75; and Concerns about Body and Appearance, .79.

Erwin and Schmidt (1981) examined the convergent validity of the EIS by correlating EIS scores with the Identity Achievement Scale (Simmons. 1973) and the I-E Scale (Rotter, 1966). The IAS is a 24 item objectively scored instrument based on Marcia's (1966) interpretation of Erikson's (1968) conceptualization of identity development. Each of the four Marcia statuses (Identity Achievement, Moratorium, Foreclosures, and Identity Diffusion) is defined by a crisis and/or commitment in a particular life area; according to Marcia, a person with scores at the highest level, Identity Achievement, has undergone both a crisis and subsequent commitment to some area in his or her life. The IAS has an estimated test-retest reliability of .76 (Simmons, 1973).

The I-E Scale is based upon Rotter's internal-external locus of control measure. The I-E Scale is a measure of the belief in internal versus external control of reinforcement; high scores on the I-E Scale indicate a belief in an external locus of control, and low scores indicate a belief in an internal locus of control.

Erwin and Schmidt (1981) found the IAS, I-E Scale, and the EIS measure similar but different conceptualizations of identity. The IAS Identity Achievement level correlated moderately with the EIS Confidence (r= .46) and Sexual Identity (r=.29) subscales, but the correlation between Identity Achievement and Conceptions about Body and Appearance was positive but low (r=.18). The weak relationship between identity achievement (as measured by the IAS) and acceptance of body and physical appearance (as measured by the EIS) indicates one distinction between Chickering's and Marcia's conceptualizations of identity (Erwin & Schmidt, 1981).

The relationship between the EIS and I-E Scale also provided support for the construct validity of the EIS (Erwin & Schmidt, 1981). The I-E Scale was negatively correlated with Confidence (-.21) and Sexual Identity (-.36); higher scores on Confidence and Sexual Identity were therefore related to an internal locus of control. This finding follows Chickering's assertion that identity formation progresses from an external towards an increasingly internal locus of control.

Identity is a developmental construct; therefore a valid measure of identity should reflect increases in identity scores over the four years of college. Hood, Riahinejad and White (1986) completed a longitudinal study using the EIS at the University of Iowa which examined all three components of the EIS: Confidence, Sexual Identity, and Conceptions about Body and Appearance. The mean scores on all three subscales

increased from freshman orientation to senior year for both sexes. After being tested in the summer before freshman year, a group of students was additionally retested during the spring of the freshman year; there were no mean increases in scores on the Confidence and Sexual Identity subscales, but there was a significant decrease in scores on the Concerns about Body Appearance Scale. Four years later, student scores on the Confidence subscale showed a significant increase. The Sexual Identity subscale, which remained the same during the freshman year, increased by the senior year. The Concerns about Body Appearance scale, which decreased during the freshman year, showed a smaller but statistically significant increase from the original summer orientation testing, and a larger increase from the freshman year retests. Overall, then, most of the increase in scores occurred during the sophomore through senior years. This finding is contrary to Chickering's (1969) belief that most of the change in college occurs during the freshman year. An important finding from this longitudinal study was the relationship found between involvement in campus groups and recreational activities and growth on the subscales. Those students who were active in organizations and recreational activities had significantly higher scores as seniors on all three subscales.

The Scale of Intellectual Development

The Scale of Intellectual Development (SID-IV) (Erwin, 1981) is an objectively scored instrument based on Perry's (1970) scheme of intellectual and ethical development. The SID measures development in four broad areas, listed in hierarchical order: dualism, relativism, commitment, and empathy.

Students with high scores on the dimension of Dualism are at the lower stages on the Perry continuum; they view the world in dualistic, black-white terms, and rely on an

authority for answers to problems. They have little confidence in their ability to make decisions for themselves. An example item on this factor is: "If I was having a personal problem, I would want a counselor to tell me what to do."

Students who have high scores on the factor of Relativism on the SID view themselves as possessing the capability to solve problems, but still rely on external sources for answers. They are able to recognize alternative perspectives, but still view their lives as being controlled by external forces (Buczynski, 1991). An example of an item on this factor is: "Almost anything can look right when viewed from some perspective."

Students at the level of Commitment recognize their views as valid, and are committed to a value system and personal method of processing information. While valuing their own belief system and accepting the consequences of this commitment, they are also able to recognize and accept the values of others as valid. An example of an item on this factor is: " I have sorted through all my beliefs and decided which ones I will keep and which I will discard."

At the level of Empathy, a student experiences a sense of commitment to multiple responsibilities, and considers the impact of his or her actions on society. He or she has developed a feeling of responsibility for improving society in general (Erwin, 1981). An example of an item on this factor is: "I often consider the potential effects of my behavior on the good of society."

The SID is a 115-question instrument, and for each item a respondent is asked to indicate whether he or she agrees with each item on a 4-point scale, ranging from "Strongly Agree," "Slightly Agree," "Slightly Disagree," and "Strongly Disagree."

Scores are totaled for each subscale: Dualism, Relativism, Commitment, and Empathy. The SID also contains a fake subscale. Erwin (1988) recommended if a student scores higher than 19 on this scale, the scores should be excluded from the final data analysis.

Cronbach (1951) alpha coefficients for internal consistency of the SID range from .73 to .81 (Dualism, .81; Relativism, .70; Commitment, .76; and Empathy, .73). The subscales were tested for inter-relationships to determine if high scores on one scale would result in low scores on the other three subscales. Erwin found negative correlations between three of the subscales (Dualism and Relativism, Dualism and Commitment, and Relativism and Commitment) yet found a positive, moderate correlation between Commitment and Empathy. Erwin (1983) suggested individuals who are able to empathize with the needs of others have likely made commitments in one or more areas of their lives; therefore these two subscales are highly related.

Erwin reported correlations between the Empathy scale and other subscales which are both positive and negative; he therefore questioned the validity of the Empathy scale, and cautioned against the interpretation of the scale because it lacks direct relevance to the Perry scheme, and because too few members of the normative group had reached this highest developmental level to warrant construct validity (Erwin, 1986). The results for this subscale in the present study will therefore be interpreted with this caution.

Erwin examined the construct validity of the SID by examining the relationship between the SID and the Erwin Identity Scale (EIS). He found negative correlations between the SID subscales of Dualism and Relativism and the EIS subscales of Confidence, Sexual Identity and Conceptions about Body and Appearance (Erwin, 1983). The correlations between Commitment and the EIS subscales were moderate and

positive. Erwin hypothesized students who are rigid in their thinking or who view the world in a pluralistic and uncommitted way tend to lack confidence in themselves and lack a sense of comfort with their feelings or their bodies (Erwin, 1983). Conversely, students who are committed in some areas of their lives have developed a greater confidence in themselves and have a stronger sense of identity, as manifested through an awareness of their feelings, bodies, and physical appearance.

In an additional study which demonstrated the construct validity of the SID, Pollock (1984, as cited in Erwin, 1988) administered the SID to traditional-age and a group of older age community college students. Overall, there was a negative correlation between the Dualism and Relativism subscales, Relativism and Commitment subscales, and Dualism and Commitment subscales. The study did not use the Empathy subscale due to its suspected validity as recommended by Erwin (1988).

The older group scored significantly higher on the Commitment subscale, and lower on the Dualism subscale, than did the traditionally-aged students. Overall, a significant relationship was found between college grade point average and higher intellectual development scores as measured by the SID.

Research Design

Research Definitions

1. **Binge Drinking**: For the purposes of this study, binge drinking was defined according to Blane's (1977) definition of binge drinking; that is, consumption of five or more drinks in one sitting on a regular basis. Binge drinking was defined as consumption of 5 or more drinks in one sitting, as determined from a student's response to question 14 of the Core Alcohol and Drug Survey.

2. **Binge Drinker**: For the purposes of this study, a student was considered to be a binge drinker if a he or she reported having consumed five or more drinks in one sitting during the two weeks prior to the survey, as determined by a student's response to question 14 of the Core Alcohol and Drug Survey.

3. **Frequent Binge Drinker**: For the purposes of this study, a student was classified as a frequent binge drinker if he or she reported having consumed five or more drinks in one sitting on three or more occasions during the two weeks prior to the survey, as determined by a student's response to question 14 of the Core Alcohol and Drug Survey.

4. **Drinker**: A student was classified as a drinker if he or she drinks alcohol but did not report having engaged in binge drinking during the two weeks prior to the survey. This classification was made if a student responded "none" on question 14 regarding binge drinking, and reported having consumed an average of one or more drinks per week in response to question 15 of the Core Alcohol and Drug Survey.

5. **Abstainer**: A student was classified as an abstainer if he or she reported no consumption of alcohol on both question 14 and 15 of the Core Alcohol and Drug Survey.

6. Information regarding class, age, ethnic origin, gender, and cumulative grade point average were obtained from participant responses on questions 1, 2, 3, 5, and 9 of the Core Alcohol and Drug Survey.

7. **Greek membership**: A student was classified as being a member of a Greek organization if he or she indicated having had "active involvement" or a "leadership position" in response to item 24c on the Core Alcohol and Drug Survey.

Activity: A student's involvement in student activities was determined by his or her responses to item 24 of the Core Alcohol and Drug Survey. A student's total number of activities, including involvement in Greek organizations, was compiled from responses to item 24a-j.

1. **Volunteerism**: Whether or not a student devotes his or her time to volunteer activities was determined from question 23 of the Core Alcohol and Drug Survey.

Specific Null Hypotheses

1. There are no differences between frequent bingers, bingers, drinkers, and abstainers in level of moral reasoning as measured by the DIT.

2. There are no differences between freshmen, sophomores, juniors, and seniors in level of moral reasoning as measured by the DIT.

3. There are no differences between men and women in moral reasoning level as measured by the DIT.

4. There are no differences between frequent bingers, bingers, drinkers, and abstainers in level of identity development as measures by the EIS.

5. There are no differences between freshmen, sophomores, juniors, and seniors in identity development as measured by the EIS.

6. There are no differences between men and women in identity development as measured by the EIS.

7. There are no differences between frequent bingers, bingers, drinkers, and abstainers in level of intellectual development as measured by the SID.

8. There are no differences between freshmen, sophomores, juniors, and seniors in level of intellectual development as measured by the SID.

9. There are no differences between men and women in level of intellectual development as measured by the SID.

10. There are no differences between freshmen, sophomores, juniors, and seniors in terms of alcohol consumption category.

11. There are no differences between men and women in terms of alcohol consumption category.

12a. There is no relationship between a student's level of involvement in activities and his or her alcohol consumption category membership.

12b. There is no difference between members of Greek organizations and non-members of Greek organizations in terms of alcohol consumption category.

Data Analysis

Relationships among variables, as specified in the research hypotheses, were examined through one of the following univariate statistical techniques: the chi-square test, one-factor analysis of variance, or t-test for independent samples.

Discriminant analysis was used to determine multivariate relationships among variables and alcohol consumption patterns. In this study, the analysis was used to determine how well scores on the measures of predictor variables (identity development score, moral development score, intellectual development score, student involvement level, Greek membership, class standing, and gender) were able to discriminate between the criterion groups: Abstainers, Drinkers, Bingers, and Frequent Binge Drinkers.

Discriminant analysis is a technique for identifying relationships between qualitative variables (in this case, membership in alcohol consumption pattern category), and quantitative predictor variables (Kachigan, 1982). The procedure identifies the linear combination of variables that best discriminates between the groups; a composite score, based on the weighted linear combination of the predictor variable values, is used to classify each case into one of the criterion groups (Sharma, 1996). In this study, a stepwise selection was used for entering variables into the equation. A stepwise selection enters only those predictor variables which best discriminate between the groups into the analysis. In stepwise selection, the amount of multicollinearity present in the data should be assessed. When predictor variables are highly correlated, a certain variable may not be included in the analysis because of its high correlation with other variables. This does not imply that the variable is not important; it is not included because it does not add any additional information to the equation, and is therefore deemed redundant. The resultant function is therefore dependent upon the order in which the variables are entered into the equation. The tolerance level entered for the analysis can serve as a control for the multicollinearity the researcher is willing to tolerate (Kashigan, 1982).

The statistical significance of the function may be estimated from the Wilks' Lambda, a measure based on the differences between the groups, as determined by the intercorrelations among predictor variables and the derived discriminant functions (Sharma, 1996). Significance is determined from a chi-square statistic which is estimated from the Wilks' Lambda. On SPSS output which summarizes the analysis, the chi-square presented on the first row of the output gives the significance of the first function. The statistical significance of the remaining discriminant functions establishes whether they

conjointly explain a significant portion of the difference among the groups that was not explained by the first function (Sharma, 1996).

While a statistically significant chi-square may be obtained, it is possible for the differences between groups to be small. Sharma (1996) recommended that practical significance should be examined to determine how meaningful or large the differences between groups actually are. The Squared Canonical Correlation may be used as a measure of practical significance. This measure indicates a percentage of the variation between groups which is accounted for by the variables in the function.

The eigenvalues for a function may also be used as measures of practical significance. An eigenvalue is associated with each derived variable, and corresponds to the equivalent number of variables which the factor represents; the greater the value of the eigenvalue, the greater the function's ability to discriminate between groups (Kachigan, 1982).

The next step in a discriminant analysis is to determine the effectiveness of the function in classifying individual cases into groups. This information is presented in the form of a classification matrix, a table of predicted versus actual group membership. To determine the utility of the function, the accuracy of a function in predicting group membership is compared with the accuracy which could be expected by chance or uninformed prediction (Sharma, 1996).

Ethical Considerations

The following precautions were established in efforts to maintain ethical standards:

1. Participants were fully informed in writing of the purpose of this investigation.

2. Participation was voluntary, and participants retained the right to discontinue the inventories, in part or in full, or to decline to return the instrument battery.
3. Participants were assured, in writing, of the confidentiality of their responses. Responses were kept anonymous by asking participants to return the inventories separately from a coded post card. The code on the post card was then matched to a master mailing list; therefore the participants' names were never associated with the inventory responses.
4. Participants were given the opportunity to receive the results of the study upon its completion, by contacting the researcher through e-mail.

Summary

The researcher investigated the relationship between college student alcohol consumption patterns and college student development in the domains of moral, identity, and intellectual development, as measured by the Core Alcohol and Drug Survey, the Defining Issues Test, the Erwin Identity Scale, and the Scale of Intellectual Development, respectively. Relationships between each variable, as specified in the research hypotheses, were examined through one of the following univariate statistical techniques: the chi-square test, one-factor analysis of variance, or t-test for independent samples. The pattern of the multivariate relationships among variables was examined though a discriminant analysis of drinking pattern classification through the following predictor variables: class standing, gender, student involvement, and scores on the DIT, EIS, and SID. Ethical standards were maintained during the data gathering and analysis procedures.

Chapter Four: The Results

The purpose of this study was to investigate the relationship between drinking patterns and college student characteristics, including class, gender, and development. in the domains of moral, identity, and intellectual development. The study also attempted to determine the linear combination of student characteristics which best predicts drinking category membership. The findings of the study will be discussed in this chapter. It is organized into three sections: descriptive statistics, data analysis of specific research hypotheses, and additional analyses.

Descriptive Statistics

The sample for this study included 114 undergraduate students at the College of William and Mary. The mean age of the sample group was 19.6. The sample was comprised of 32 freshmen (28.1%); 32 sophomores (28.1%); 25 juniors (21.9%); and 25 seniors (21.9%). Each student completed four assessments which they received by mail in January and February of 1997. The assessment battery included the Core Alcohol and Drug Survey, the Erwin Identity Scale, the Scale of Intellectual Development, and the Defining Issues Test.

Demographic information about each participant including age, gender, race, class, and current grade point average was recorded from the Core Alcohol and Drug Survey. Information regarding each student's participation in college activities was also included for analysis. This information included: participation in Greek organizations and

other campus activities (e.g., athletics, intramurals, political and social action groups, religious organizations, volunteer activities, international/minority student organizations, involvement with campus performing arts groups, and involvement in student-run magazines or newspapers).

The sample group of 114 undergraduate students was compared with a group of 22 students who did not respond to the mailing of the four instruments, but who did respond to a fourth mailing of the Core Alcohol and Drug Survey which was mailed in March, 1997. These students were used as a follow-up comparison group because they did not respond to a lengthy survey packet, and did not respond to two additional mailings of the Core Alcohol and Drug Survey. The participants and the follow-up group were compared on the following characteristics: drinking category, class, gender, grade point average, involvement in a Greek organization, and participation in college activities. Groups were compared to determine if there were significant differences between the sample and those who did not respond to the complete survey packet. Frequency distributions for the two groups are presented in Tables 4, 5, and 6. On the basis of these characteristics, it was found that there were no significant differences between the groups on any of the comparisons. A two-tailed t-test for independent samples was used to test for differences between the sample and follow-up group by age. The sample mean (M=19.6).was not significantly higher than the mean age for the follow-up group (M=20.2), t (134) = .1.89, p>.05. A t-test for independent samples was also used to test for differences between the group means on number of activities, and no significant difference was found between the sample (M=1.7, SD=.97) and the follow-up group (M=1.8, SD=1.0), t (134)=.-28 p>.05. There was also no significant difference between the sample and the follow-up group on mean grade point average, t(134)=-.64,

p>.05. To test for differences between the groups by gender, a chi-square test was used. With an alpha equal to .05, a chi-square test on the frequencies was not significant. x^2 (1, N = 136) = .19, p>.05. To test for differences between the groups by class, a chi-square test was used. With an alpha equal to .05, the chi-square test on the frequencies was not significant, x^2 (3, N = 136) =2.8, p>.05. To test for differences between the groups by drinking category membership, a chi-square test showed no significant differences between the groups, x^2 (3, N=136) = .39, p>.05. To test for differences between the groups in terms of membership in Greek organizations, a chi-square test showed no significant differences between the groups, x^2 (1, N=136) = .04, p>.05.

The mean scores and standard deviations for the research instruments are presented in Table 7. Frequency distributions for the sample are included in Appendix B.

Table 4

Alcohol Consumption Category Frequency

	Participants (n=114)		Follow-up Group (n=22)	
Binge Drinking Category	Frequency	Percentage	Frequency	Percentage
Abstainer	34	30.9	8	36.4
Drinker	30	26.3	5	22.7
Binger	27	23.7	5	22.7
Frequent Binge Drinker	23	20.2	4	18.2

Table 5

Gender, Class, and Greek Membership of Participants and Follow-up Group

	Participants (n=114)		Follow-up Group (n=22)	
Gender	**Frequency**	**Percentage**	**Frequency**	**Percentage**
Male	38	33.3	13	59.1
Female	76	66.7	9	40.9
Class				
Freshman	32	28.1	4	18.2
Sophomore	32	28.1	4	13.6
Junior	25	21.9	7	36.4
Senior	25	21.9	7	31.8
Greek Membership	39	34.2	8	40.9
Number of Activities				
Zero	7	6.1	2	9.1
One	43	37.7	6	27.3
Two	34	29.8	10	45.5
Three	22	19.3	3	13.6
Four	7	6.1	1	4.5
Five	1	.9	0	0

Table 6

Age and Race of Participants and Follow-up Group

	Participants (n=114)		Follow-up Group (n=22)	
Race	**Frequency**	**Percentage**	**Frequency**	**Percentage**
Caucasian	106	93	20	91
African American	3	5.9	2	9
Asian American	3	7.2	0	0
Hispanic	1	2.1	0	0
Age				
18	25	21.9	3	13.6
19	34	29.8	2	9.1
20	23	20.2	7	31.8
21	19	16.7	7	31.8
22	13	11.4	3	13.6

Table 7

Overall Mean Scores On Research Instruments

Scale	Range	Mean	Standard Deviation
Defining Issues Test	3.3-76.6	39.3	17.4
EIS- Confidence	39-132	85.4	15.9
EIS-Sexual Identity	28-96	64.1	10.2
EIS-Concerns about Body and Appearance	31-79	53.5	10.1
SID-Dualism	30-97	47.9	10.6
SID-Relativism	22.7-81.0	48.9	10.7
SID-Commitment	20-97.8	66.3	15.4
SID-Empathy	17.2-102.9	53.1	12.9

Data Analysis for Research Hypotheses

The following section will restate each research hypothesis and describe the relationships for each variable (Gender; Class; Greek Membership; Number of Activities; DIT score; EIS Confidence score, EIS Sexual Identity Score, EIS Concerns about Body and Appearance Score; SID Dualism Score, SID Relativism Score. SID Commitment Score, and SID Empathy Score). The sample characteristics which best discriminate between alcohol consumption category membership are also described through the use of discriminant analysis.

Specific Research Hypotheses

1. There are no differences between Frequent Bingers, Bingers, Drinkers, and Abstainers in level of moral reasoning as measured by the DIT.

A one-way analysis of variance was used to examine the relationship between drinking category membership and DIT score. The mean DIT score was 41.7 (SD=18.2) for the Abstainer group, 39.1 (SD= 16.8) for the Drinker group, 39.4 (SD = 18.5) for the Binger group, and 35.6 (SD = 16.3) for the Frequent Binger group. With alpha equal to .05. a one-factor between subjects analysis of variance indicated a nonsignificant effect for drinking category: $F(3, 110) = .55$, $p>.05$. The null hypothesis was retained for this hypothesis. The group means and standard deviations are presented in Table 8. The one-factor analysis of variance is presented in Appendix B.

2. There are no differences between freshmen, sophomores, juniors, and seniors in level of moral reasoning as measured by the DIT.

A one-factor analysis of variance was computed to test for differences between freshmen, sophomores, juniors, and seniors on DIT scores. The mean for the freshmen was 37.3 (SD=17.6), for sophomores it was 35.4 (SD = 17.7), for juniors it was 46.9 (SD = 16.2), and for seniors it was 39.3 (SD = 16.8). With an alpha level of .05, a one-factor between subjects analysis of variance indicated a nonsignificant effect for drinking category: $F(3, 110) = 2.34$, $p>.05$. The null hypothesis was retained for this hypothesis. The means and standard deviations for the DIT by class are presented in Table 9. The ANOVA summary is presented in Appendix B.

3. There are no differences between men and women in moral reasoning level as measured by the DIT.

A t-test for independent samples was used to test for differences between men and women by DIT score. With an alpha level of .05 and a two-tailed t-test, the mean DIT score for women (M = 42.1, SD = 17.7) was significantly larger than the mean for men (M = 33.6, SD= 15.7), $t(112) = -2.5$, $p<.05$. The null hypothesis was rejected at the .05 level for this hypothesis. The t-test summary is presented in Appendix B.

4. There are no differences between Frequent Bingers, Bingers, Drinkers, and Abstainers in level of identity development as measured by the EIS.

A one-factor analysis of variance was used to test for differences between drinking category membership on each subscale of the EIS. On the Confidence subscale, the mean for the abstainer group was 85.8 (SD = 14.7), the mean for the Drinker group was 86.0 (SD = 13.5), the mean for the Binger group was 83.9 (SD = 19.3), and the mean for the Frequent Binger group was 86.1 (SD = 17.5). With an alpha level of .05, the one-factor analysis of variance indicated no significant differences between groups, $F(3, 110) = .11$,

p>.05. The null hypothesis was retained for this hypothesis. The means and standard deviations for the EIS Confidence subscale are presented in Table 10. The ANOVA summary is presented in Appendix B.

A one-factor analysis of variance was used to test for differences between alcohol consumption category groups on the Sexual Identity Subscale. The means for each group were as follows: The mean for the Abstainer group was 65.6 (SD = 8.4), the mean for the Drinker group was 65.4 (SD = 13.6), the mean for the Binger group was 61.6 (SD = 9.2) and the mean for the Frequent Binger group was 63.3 (SD = 8.2). With an alpha level of .05, there were no significant differences found between any of the four groups, F(3, 110) = .99, p>.05. The null hypothesis was retained for this hypothesis. The means and standard deviations for the EIS Sexual Identity Scale are presented in Table 11. The ANOVA summary is presented in Appendix B.

A one-factor analysis of variance was used to test for differences between alcohol consumption category groups on the Concerns About Body and Appearance Subscale. The means for each group were as follows: The mean for the Abstainer group was 54.4 (SD = 9.0), the mean for the Drinker group was 55.5 (SD = 9.4), the mean for the Binger group was 51.4 (SD = 10.8) and the mean for the Frequent Binger group was 52.2 (SD = 11.7). With an alpha level of .05, there were no significant differences found between any of the four groups, F(3, 110) = .98, p>.05. The null hypothesis was retained for this hypothesis. The means and standard deviations for the EIS Concerns About Body and Appearance Scale are presented in Table 12. The ANOVA summary is presented in Appendix B.

5. There are no differences between freshmen, sophomores, juniors, and seniors in identity development as measured by the EIS.

A one-factor analysis of variance was used to test for differences between classes on each subscale of the EIS. On the Confidence subscale, the mean for freshmen was 88.0 (SD = 17.8), the mean for the sophomores was 84.0 (SD = 12.0), the mean for juniors was 81.2 (SD = 17.1), and the mean for seniors was 88.2 (SD = 16.7). With an alpha level of .05, the one-factor analysis of variance indicated no significant differences between groups, $F(3, 110) = 1.2$, $p>.05$. The null hypothesis was retained for this hypothesis. The means and standard deviations for the EIS Confidence subscale by class are presented in Table 13. The ANOVA summary is presented in Appendix B.

A one-factor analysis of variance was used to test for differences between classes on the Sexual Identity Subscale. The means for each group were as follows: The mean for freshmen was 63.9 (SD = 9.2), the mean for sophomores was 65.8(SD = 9.9), the mean for juniors was 59.1(SD = 10.9) and the mean for seniors was 67.4 (SD = 9.6). With an alpha level of .05, the analysis of variance indicated a significant effect for class: $F(3, 110) = 3.3$, $p<.05$. The null hypothesis was rejected for this hypothesis. Post hoc comparisons using the Tukey HSD test (CD = 3.69, alpha = .05) indicated significantly higher scores for seniors compared with scores for juniors, but no significant differences between scores for juniors compared with freshmen and sophomores. The means and standard deviations for the EIS Sexual Identity Scale are presented in Table 14. The ANOVA summary is presented in Appendix B.

A one-factor analysis of variance was used to test for differences between classes on the Concerns About Body and Appearance Subscale. The means for each group were as

follows: The mean for freshmen was 54.3(SD = 8.9), the mean for sophomores was 54.1(SD = 11.7), the mean for juniors was 51.2 (SD = 8.7) and the mean for seniors was 54.1(SD = 10.8). With an alpha level of .05, there were no significant differences found between any of the four groups, $F(3, 110) = .54$, $p>.05$. The null hypothesis was retained for this hypothesis. The means and standard deviations for the EIS Concerns About Body and Appearance Scale are presented in Table 15. The ANOVA summary is presented in Appendix B.

6. There are no differences between men and women in identity development as measured by the EIS.

A t-test for independent samples was used to test for differences between men and women by Confidence subscale means. With an alpha level of .05 and a two-tailed t-test, the mean Confidence score for women (M = 86.5, SD = 16.0) was not significantly larger than the mean for men (M = 83.3, SD= 15.9), $t(112) = -1.01$, $p>.05$. The null hypothesis was retained at the .05 level for this hypothesis. The means and standard deviations for Confidence scores by gender are presented in Table 16. The t-test summary is presented in Appendix B.

A t-test for independent samples was used to test for differences between men and women by Sexual Identity score. With an alpha level of .05 and a two-tailed t-test, the mean Sexual Identity score for women (M = 64.4, SD = 10.6) was not significantly larger than the mean for men (M = 63.6, SD= 9.3), $t(112) = -.38$, $p>05$. The null hypothesis was retained at the .05 level for this hypothesis. The means and standard deviations for Sexual Identity Scores by gender are presented in Table 17. The t-test summary is presented in Appendix B.

A t-test for independent samples was used to test for differences between men and women by Concerns About Body and Appearance score. With an alpha level of .05 and a two-tailed t-test, the mean CABA score for women (M = 54.2, SD = 9.9) was not significantly larger than the mean for men (M = 52.2, SD= 10.5), t (112) = -.94, p>.05. The null hypothesis was retained at the .05 level for this hypothesis. The means and standard deviations for CABA scores by gender are presented in Table 18. The t-test summary is presented in Appendix B.

7. There are no differences between Frequent Bingers, Bingers, Drinkers, and Abstainers in level of intellectual development as measured by the SID.

A one-factor analysis of variance was used to test for differences between drinking category membership on each subscale of the SID. On the Dualism subscale, the mean for the Abstainer group was 47.1 (SD = 9.1), the mean for the Drinker group was 48.3 (SD = 11.8), the mean for the Binger group was 46.9(SD = 9.3), and the mean for the Frequent Binger group was 49.7 (SD = 12.8). With an alpha level of .05, the one-factor analysis of variance indicated no significant differences between groups, F(3, 110) = .37, p>.05. The null hypothesis was retained for this hypothesis. The means and standard deviations for the SID Dualism subscale are presented in Table 19. The ANOVA summary is presented in Appendix B.

A one-factor analysis of variance was used to test for differences between drinking category membership on the Relativism subscale of the SID. On the Relativism subscale, the mean for the Abstainer group was 48.8 (SD = 8.9), the mean for the Drinker group was 48.6(SD = 13.6), the mean for the Binger group was 48.9(SD = 9.5), and the mean for the Frequent Binger group was 49.4 (SD = 10.9). With an alpha level of .05, the one-

factor analysis of variance indicated no significant differences between groups, F(3, 110) = .03, p>.05. The null hypothesis was retained for this hypothesis. The means and standard deviations for the SID Dualism subscale are presented in Table 20. The ANOVA summary is presented in Appendix B.

A one-factor analysis of variance was used to test for differences between drinking category membership on the Commitment subscale of the SID. On the Commitment subscale, the mean for the Abstainer group was 71.5 (SD = 11.0), the mean for the Drinker group was 69.1 (SD = 15.2), the mean for the Binger group was 62.5 (SD = 16.0), and the mean for the Frequent Binger group was 59.6 (SD = 17.7). With an alpha level of .05, the one-factor analysis of variance indicated a significant effect for group membership, F(3, 110) = 3.9, p<05. Post hoc comparisons using the Tukey HSD test (CD = 3.69, alpha = .05) indicated significantly higher scores for Abstainers compared with scores for Frequent Bingers, but no significant differences between scores for Abstainers compared with Drinkers and Bingers, or for Frequent Bingers compared with Bingers and Drinkers. The null hypothesis was rejected at the .05 level for this hypothesis. The means and standard deviations for the SID Commitment subscale by alcohol consumption category are presented in Table 21. The ANOVA summary is presented in Appendix B.

A one-factor analysis of variance was used to test for differences between drinking category membership on the Empathy subscale of the SID. On the Empathy subscale, the mean for the Abstainer group was 56.1 (SD = 8.5), the mean for the Drinker group was 55.9 (SD = 14.2), the mean for the Binger group was 48.8 (SD = 13.4), and the mean for the Frequent Binger group was 49.9 (SD = 14.4). With an alpha level of .05, the one-factor analysis of variance indicated no significant differences between groups, F(3, 110)

= 2.7, p>.05. The null hypothesis was retained for this hypothesis. The means and standard deviations for the SID Empathy subscale are presented in Table 22. The ANOVA summary is presented in Appendix B.

8. There are no differences between freshmen, sophomores, juniors, and seniors in level of intellectual development as measured by the SID.

A one-factor analysis of variance was used to test for differences between classes on the Dualism subscale of the SID. On the Dualism subscale, the mean for freshmen was 49.2 (SD = 10.9), the mean for sophomores was 46.1 (SD = 6.9), the mean for juniors was 51.2 (SD = 13.0), and the mean for seniors was 45.3 (SD = 10.9). With an alpha level of .05, the one-factor analysis of variance indicated no significant differences between groups, F(3, 110) = 1.9, p>.05. The null hypothesis was retained for this hypothesis. The means and standard deviations for the SID Dualism subscale by class are presented in Table 23. The ANOVA summary is presented in Appendix B.

A one-factor analysis of variance was used to test for differences between classes on the Relativism subscale of the SID. On the Relativism subscale, the mean for freshmen was 49.8 (SD = 10.6), the mean for sophomores was 48.8 (SD = 8.9), the mean for juniors was 52.9 (SD = 12.2), and the mean for seniors was 43.9 (SD = 10.2). With an alpha level of .05, the one-factor analysis of variance indicated a significant effect by class, F(3, 110) = 3.2, p<.05. Post hoc analyses using the Tukey HSD test indicated the means for seniors were significantly lower than the means for juniors. There were no significant differences between seniors compared with sophomores and freshmen, or with juniors compared with sophomores and freshmen. The null hypothesis was rejected at the .05 level for this

hypothesis. The means and standard deviations for the SID Relativism subscale by class are presented in Table 24. The ANOVA summary is presented in Appendix B.

A one-factor analysis of variance was used to test for differences between classes on the Commitment subscale of the SID. On the Commitment subscale, the mean for freshmen was 64.9 (SD = 16.9), the mean for sophomores was 64.1 (SD = 11.3), the mean for juniors was 66.0 (SD = 15.3), and the mean for seniors was 71.2 (SD = 17.7). With an alpha level of .05, the one-factor analysis of variance indicated no significant differences between groups, $F(3, 110) = 1.1$, $p>.05$. The null hypothesis was retained at the .05 level for this hypothesis. The means and standard deviations for the SID Commitment subscale by class are presented in Table 25. The ANOVA summary is presented in Appendix B.

A one-factor analysis of variance was used to test for differences between classes on the Empathy subscale of the SID. On the Empathy subscale, the mean for freshmen was 52.2 (SD = 11.1), the mean for sophomores was 52.0 (SD = 15.9), the mean for juniors was 56.6 (SD = 12.1), and the mean for seniors was 52.2 (SD = 11.5). With an alpha level of .05, the one-factor analysis of variance indicated no significant differences between groups, $F(3, 110) = .78$, $p>.05$. The null hypothesis was retained at the .05 level for this hypothesis. The means and standard deviations for the SID Empathy subscale by class are presented in Table 26. The ANOVA summary is presented in Appendix B.

9. There are no differences between men and women in level of intellectual development as measured by the SID.

A t-test for independent samples was used to test for differences between men and women by Dualism subscale means. With an alpha level of .05 and a two-tailed t-test, the mean Dualism score for women (M = 47.7, SD = 10.9) was not significantly smaller than

the mean for men (M = 48.4, SD= 10.1), t (112) = .35, p>.05. The null hypothesis was retained at the .05 level for this hypothesis. The means and standard deviations for Dualism scores by gender are presented in Table 27. The t-test summary is presented in Appendix B.

A t-test for independent samples was used to test for differences between men and women by Relativism subscale means. With an alpha level of .05 and a two-tailed t-test, the mean Relativism score for women (M = 49.0, SD = 10.9) was not significantly larger than the mean for men (M = 48.7, SD= 10.4), t (112) = -.16, p>.05. The null hypothesis was retained at the .05 level for this hypothesis. The means and standard deviations for Relativism scores by gender are presented in Table 28. The t-test summary is presented in Appendix B.

A t-test for independent samples was used to test for differences between men and women by Commitment subscale means. With an alpha level of .05 and a two-tailed t-test, the mean Commitment score for women (M = 67.1, SD = 13.9) was not significantly larger than the mean for men (M = 64.7, SD= 18.1), t (112) = -.77, p>.05. The null hypothesis was retained at the .05 level for this hypothesis. The means and standard deviations for Commitment scores by gender are presented in Table 29. The t-test summary is presented in Appendix B.

A t-test for independent samples was used to test for differences between men and women by SID Empathy subscale means. With an alpha level of .05 and a two-tailed t-test, the mean Empathy score for women (M = 54.3, SD = 12.7) was not significantly larger than the mean for men (M = 50.7, SD= 13.0), t (112) = -1.39, p>.05. The null hypothesis was retained at the .05 level for this hypothesis. The means and standard

deviations for Empathy scores by gender are presented in Table 30. The t-test summary is presented in Appendix B.

10. There are no differences between freshmen, sophomores, juniors, and seniors in terms of alcohol consumption category.

Appendix B presents the observed and expected frequencies for class and alcohol consumption category membership. With an alpha equal to .05, a chi-square test on these frequencies was not statistically significant, x^2 (9, N=114) = 6.7, p>.05. The null hypothesis was retained at the .05 level for this hypothesis.

11. There are no differences between men and women in terms of alcohol consumption category.

Appendix B presents the observed and expected frequencies for gender and alcohol consumption category membership. With an alpha equal to .05, a chi-square test on these frequencies was not statistically significant, x^2 (3, N=114) = 7.0, p>.05. The null hypothesis was retained at the .05 level for this hypothesis.

12a. There is no relationship between a student's campus involvement and his or her alcohol consumption category.

A one-factor analysis of variance was used to test for differences between drinking category membership and mean score on activity level. The mean for the Abstainer group was 1.5 (SD = .93), the mean for the Drinker group was 2.2 (SD = 1.1), the mean for the Binger group was 2.0 (SD = 1.2), and the mean for the Frequent Binger group was 1.7(SD = .92). With an alpha level of .05, the one-factor analysis of variance indicated a significant effect for number of activities, F(3, 110) = 2.94, p<.05. Post hoc analyses

using the Tukey HSD test indicated a significantly larger activity mean for Drinkers compared to Abstainers, but not for Drinkers compared to Bingers and Frequent Bingers, or for Abstainers compared to Bingers and Frequent Bingers. The null hypothesis was rejected for this hypothesis. The means and standard deviations for Activity level by alcohol consumption category are presented in Table 30. The ANOVA summary is presented in Appendix B.

12b. There are no differences between members of Greek organizations and non-members of Greek organizations in terms of alcohol consumption category.

Appendix B presents the observed and expected frequencies for Greek or non-Greek membership and alcohol consumption category membership. With an alpha equal to .05, a chi-square test on these frequencies was statistically significant, x^2 (3, N=114) = 38.9, $p<.01$. The members of Greek organizations were more likely to be Bingers or Frequent Binge Drinkers, while those who were not members of Greek organizations were more likely to be Abstainers or Drinkers. The null hypothesis was rejected at the .01 level for this hypothesis.

Table 8

Group Means and Standard Deviations by Alcohol Consumption Category for the Defining Issues Test

DRINKING CATEGORY	Mean	Standard Deviation
Abstainer	41.7	18.2
Drinker	39.1	16.8
Binger	39.4	18.5
Frequent Binger	35.6	16.3
Total	39.3	17.4

Table 9

Means and Standard Deviations for DIT by Class

Class	Mean	Standard Deviation
Freshmen	37.25	17.59
Sophomores	35.37	17.66
Juniors	46.88	16.24
Seniors	39.30	16.76

Table 10

Group Means, and Standard Deviations by Alcohol Consumption Category for the Erwin Identity Scale

EIS- Confidence

	Mean	Standard Deviation
Abstainer	85.8	14.7
Drinker	85.9	13.5
Binger	83.9	19.3
Frequent Binger	86.1	17.5
Total	85.5	15.9

Table 11

Means and Standard Deviations for EIS-Sexual Identity by Alcohol Consumption Category

	Mean	Standard Deviation
Abstainer	65.6	8.4
Drinker	65.4	13.6
Binger	61.6	9.2
Frequent Binger	63.3	8.2
Total	64.1	10.1

Table 12

Means and Standard Deviations for CABA Subscale by Alcohol Consumption Category

	Mean	Standard Deviation
Abstainer	54.4	9.0
Drinker	55.5	9.4
Binger	51.4	10.8
Frequent Binger	52.2	11.7
Total	53.5	10.1

Table 13

Means and Standard Deviations for EIS Confidence Subscale by Class

Class	Mean	Standard Deviation
Freshmen	88.0	17.8
Sophomores	84.0	12.0
Juniors	81.2	17.1
Seniors	88.2	16.7

Table 14

Means and Standard Deviations for EIS Sexual Identity Subscale by Class

Class	Mean	Standard Deviation
Freshmen	63.9	9.2
Sophomores	65.8	9.9
Juniors	59.1	10.9
Seniors	67.3	9.6

Table 15

Means and Standard Deviations for CABA Subscale

by Class

Class	Mean	Standard Deviation
Freshmen	54.3	8.9
Sophomores	54.1	11.7
Juniors	51.2	8.7
Seniors	54.1	10.9

Table 16

Means and Standard Deviations for Confidence Subscale by Gender

Gender	Mean	Standard Deviation
Men	83.3	15.9
Women	86.5	16.0

Table 17

Means and Standard Deviations for Sexual Identity Subscale by Gender

Gender	Mean	Standard Deviation
Men	63.6	9.3
Women	64.4	10.6

Table 18

Means and Standard Deviations for CABA Subscale by Gender

Gender	Mean	Standard Deviation
Men	52.3	10.5
Women	54.2	9.9

Table 19

Group Means and Standard Deviations by Alcohol Consumption Category for the SID Dualism Subscale

	Mean	Standard Deviation
Abstainer	47.1	9.1
Drinker	48.3	11.8
Binger	46.9	9.3
Frequent Binger	49.7	12.8
Total	47.9	10.6

Table 20

Means and Standard Deviations for SID Relativism Subscale by Alcohol Consumption Category

	Mean	Standard Deviation
Abstainer	48.8	8.9
Drinker	48.6	13.6
Binger	48.9	9.5
Frequent Binger	49.4	10.9
Total	48.9	10.7

Table 21

Means and Standard Deviations for the SID Commitment Subscale by Alcohol Consumption Category

	Mean	Standard Deviation
Abstainer	71.5	11.0
Drinker	69.1	15.2
Binger	62.5	16.0
Frequent Binger	59.6	17.6
Total	66.3	15.4

Table 22

Means and Standard Deviations for the SID Empathy Subscale

by Alcohol Consumption Category

	Mean	Standard Deviation
Abstainer	56.0	8.5
Drinker	55.9	14.2
Binger	48.8	13.4
Frequent Binger	49.9	14.4
Total	53.1	12.9

Table 23

Means and Standard Deviations for SID Dualism Subscale

by Class

Class	Mean	Standard Deviation
Freshmen	49.2	10.9
Sophomores	46.1	6.9
Juniors	51.2	13.0
Seniors	45.3	10.9

Table 24

Means and Standard Deviations for SID Relativism Subscale

by Class

Class	Mean	Standard Deviation
Freshmen	49.8	10.6
Sophomores	48.8	8.9
Juniors	52.9	12.2
Seniors	43.9	10.2

Table 25

Means and Standard Deviations for SID Commitment Subscale by Class

Class	Mean	Standard Deviation
Freshmen	64.9	16.9
Sophomores	64.1	11.3
Juniors	66.0	15.3
Seniors	71.2	17.7

Table 26

Means and Standard Deviations for SID Empathy Subscale by Class

Class	Mean	Standard Deviation
Freshmen	52.2	11.1
Sophomores	52.0	15.9
Juniors	56.6	12.1
Seniors	52.2	11.5

Table 27

Means and Standard Deviations for SID Dualism Subscale by Gender

Gender	Mean	Standard Deviation
Men	48.4	10.1
Women	47.7	10.9

Table 28

Means and Standard Deviations for SID Relativism Subscale by Gender

Gender	Mean	Standard Deviation
Men	48.7	10.4
Women	49.0	10.9

Table 29

Means and Standard Deviations for SID Commitment Subscale by Gender

Gender	Mean	Standard Deviation
Men	64.7	18.1
Women	67.1	13.9

Table 30

Means and Standard Deviations for SID Empathy Subscale by Gender

Gender	Mean	Standard Deviation
Men	50.7	13.0
Women	54.3	12.7

Table 31

Means and Standard Deviations for Activity Level by Alcohol Consumption Category

	Mean No. Of Activities	SD
Abstainers	1.5	.93
Drinkers	2.2	1.1
Bingers	2.0	1.2
Frequent Bingers	1.7	.92

Discriminant Analysis Results

The results of the discriminant analysis for alcohol consumption category group membership are presented in Tables 32-34. Table 32 includes three statistics: the Wilk's Lambda, the cannonical correlation, a chi-square derived from the Wilk's Lambda, and the significance of the chi-square. The stepwise method was used to select variables to be included in the analysis. The function derived from the entered variables is significant at the .01 level.

Table 33 gives the standardized weights for the variables in the discriminant function after the stepwise procedure was completed. Greek membership and Commitment subscale score were the strongest and only significant contributors to the function.

Although the overall function achieved a level of significance, the function was further evaluated for practical significance. The percent of variance as determined from the eigenvector value for the function was 99.63%; the second function only accounted for .37% of the variance between groups. The squared cannoncial correlation coefficient, also a useful measure of practical significance, was .392, a moderate value.

The most useful way to determine practical significance is to determine if the function improved predictive accuracy over chance or uninformed prediction. Each of the cases were classified as "Abstainer," "Drinker," "Binger," or "Frequent Binger" based on their discriminant scores. These percentages were compared with the proportion of cases in the original alcohol consumption categories. Table 34 presents this classification matrix. For Abstainers, 30 (88.2%) were correctly classified. For Drinkers, 4 (13.3%)

were correctly classified. For Bingers, 15 (55.6%) were correctly classified. For Frequent Bingers, 4 (17.4%) were correctly classified. Overall, the percent of the grouped cases correctly classified was 46.49%.

To determine if the prediction accuracy of the function was significantly greater than the classification of individuals that would be correctly classified by chance, Hair et al. (1979) suggest using the maximum chance criterion. This criterion is computed by calculating the percentage of the total sample that is accounted for by the largest of the groups. Hair et al. (1979) recommended a function's correct classification percentage should be at least 25% greater than the maximum chance criterion for the accuracy to be considered significantly greater than chance; they also advised that when more than two groups are used in the classification matrix, the discriminations between all pairwise comparisons should be computed. In the present study, the function correctly classified Abstainers at a rate significantly greater than chance when comparing Abstainers with both Drinkers and Bingers. When comparing Bingers with Drinkers, Bingers were correctly classified at a rate significantly greater than what would be expected based on chance. When comparing Bingers with Frequent Bingers, Bingers were also classified at a rate higher than chance.

Table 32

Canonical Discriminant Functions

Fcn	Eigenvalue	Pct. of variance	Cum Pct	Cannonical Corr	After fcn	Wilks Lambda	Chi Sq.	df	Sig
					0	.607	54.96	6	.00
1*	.6442	99.63	99.63	.626	1	.997	.262	2	.87
2*	.0024	.37	100.0	.049					

Table 33

Stepwise Selection Using Student Variables as Predictors

Step	Variable Added	Wilks Lambda	Significance	Standardized Coefficient
1	Greek	.68450	.0000	.926
2	Commitment	.60674	.0000	-.540

Table 34

Classification Results for Discriminant Analysis

		Predicted --------	Group----------	Membership------	----------
Actual Group	No. of Cases	Abstainer	Drinker	Binger	Frequent Binger
Abstainer	34	30	2	2	0
		88.2%	5.9%	5.9%	0%
Drinker	30	20	4	5	1
		66.7%	13.3%	16.7%	3.3%
Binger	27	7	1	15	4
		25.9%	3.7%	55.6%	14.8%
Frequent Binger	23	5	2	12	4
		21.7%	8.7%	52.2%	17.4%

Percent of "grouped" cases correctly classified : 46.49%

Additional Findings

For the purposes of supplemental analysis, the four alcohol consumption categories were combined into two categories: Non-Bingers (consisting of Abstainers and Drinkers) and Bingers (consisting of Bingers and Frequent Bingers). Analyses were performed for all developmental and demographic variables by binge drinking status. Significance was reached for the following variables: Greek membership and Commitment subscale, both of which were found using the original four category analyses. Significance was also reached for the Empathy subscale of the SID. The mean Empathy score for Non-Bingers (M=55.9, SD = 11.4) was significantly higher than the mean for Bingers (M = 49.5, SD = 13.8). Using a one-factor analysis of variance, there was a significant effect by binge drinking status for Empathy score: $F(1, 112) = 7.27$, $p<.01$. The means and standard deviations for Commitment and Empathy are presented in Table 35. The ANOVA summaries are presented in Appendix B. The Chi-square analysis for Greek Membership by Binge drinking status is also presented in Appendix B.

A separate discriminant analysis was used to examine the linear combination of variables which best predicted whether or not a student would be classified as a Binger or a Non-Binger. The results of the discriminant analysis for binge drinking status are presented in Table 36-37. Table 37 gives the standardized weights for the variables in the discriminant function after the stepwise procedure was completed. Greek membership and Commitment subscale score again were the strongest and only significant contributors to the function. The squared canonical correlation for the function is .34, a moderate value. Collapsing the categories seems to improve the prediction rate of the

function; see Table 38 for the classification matrix. In this function, 78.1 percent of the cases were correctly classified. Using the maximum chance criterion, 56.1% classification accuracy would be expected by chance alone. A classification accuracy of 70.1% would be considered significantly above chance using Hair et al.'s (1979) criterion. The total percentage of cases correctly classified (77.2%) was therefore slightly greater than what would be expected by chance alone.

Because the Activity variable included several types of activities (e.g., Greek organizations, athletic organizations, international and political groups, performing arts groups, volunteer activities, and other structured student activities), the additional variables of Volunteerism and Leadership were created for supplemental analyses. The frequency distributions for the Leadership and Volunteerism variables are presented in Table 39.

Previous research indicated those students who are binge Drinkers are less likely to participate in volunteer activities (Wechsler, 1995). It was therefore hypothesized that volunteerism would be related to alcohol consumption pattern in the present study. Thirty-six percent of the participants were volunteers with at least one organization. A chi-square analysis was utilized to examine the relationship between drinking category and volunteer status (see Appendix B). With an alpha level of .05, a chi-square test on these frequencies was not statistically significant, x^2 (3, N= 114) = 7.73, p>.05. A chi-square test was also utilized to examine the relationship between binge drinking status (Binge drinker versus Non-Binge drinker). With an alpha level of .05, the chi-square test on these frequencies was statistically significant, x^2 (1, N=114) = 5.37, p<.05. Non-Bingers were more likely to be volunteers than were Bingers (See Appendix B).

Leadership was also examined as a supplemental variable to determine if there is a relationship between alcohol consumption category and whether or not a student is a leader in at least one organization. Thirty-seven percent of students in the sample were classified as "Leaders." Appendix B presents the observed frequencies for Leader vs. Non-Leader and alcohol consumption category. With alpha equal to .05, a chi-square test on these frequencies was statistically significant, x^2 (3, N=114) = 8.06, $p<.05$. Non-leaders were more likely to be Abstainers and Drinkers, while Leaders were more likely to be Bingers and Frequent Bingers.

Because Greek membership was such a powerful contributor to the discriminant function, the Greek membership variable was examined to determine relationships with developmental and demographic variables. Greek membership was not related to any of the developmental variables (i.e., the DIT, EIS, or SID), nor was it related to class or gender. Greek membership was strongly related to binge drinking status, as was previously demonstrated when examining the relationship between alcohol consumption categories and Greek membership. When comparing Greek members and Non-Greek members by Binge drinking versus Non-binge drinking status, with an alpha level of .01, a chi-square test on these frequencies was statistically significant, x^2 (1, N=114) = 31.8, $p<.01$. Binge Drinkers were far more likely to be members of Greek organizations than were Non-binge Drinkers (see Appendix B).

All variables were also combined in a correlation matrix in order to examine relationships among variables. Table 40 presents the correlation matrix, and lists all correlation coefficients which reach significance at the .05 level.

Table 35

Means and Standard Deviations for Commitment and Empathy Subscales

by Binge Drinking Status (Binger versus Non-Binger)

	Mean	Standard Deviation
Commitment		
Non-Binge	70.3	13.1
Binge	61.2	16.7
Empathy		
Non-Binge	55.9	11.4
Binge	49.5	13.8

Table 36

Canonical Discriminant Functions

By Binge Drinking Status

Fcn	Eigen-value	Pct. Of Variance	Cum Pct.	Cannon. Corr.	After Fcn.	Wilks Lambda	Chi Square	df Sig.
					0	.640	52.75	3 .0000
1	.612	100.0	100.0	.616				

Table 37

Stepwise Selection Using Student Variables as Predictors

Step	Variable Added	Wilks Lambda	Significance	Stand. Coeff.
Step 1	Greek	.863	.000	-.870
Step 2	Commitment	.688	.000	.514

Table 38

Classification Matrix by Binge Drinking Status

Actual Group	No. of Cases	Predicted -------	Group----------
		Non-Binger	Binger
Non-Binger	64	53	10
		82.8	17.2
Binger	50	15	35
		30.0	70.0%

Percent of "grouped" cases correctly classified: 77.2%

Table 39

Frequency Distribution for Volunteerism and Leadership

	Frequency	Percent
Volunteerism		
Non-Volunteer	72	63.2
Volunteer	42	36.8
Leadership		
Non-Leader	71	62.3
Leader	43	37.7

Table 40

Correlation Coefficients which Reach Significance at the .05 level

	Activity	CABA	Commit	Conf	DIT	Class	Drink	Dual	Emp.	Gender	GPA	Greek	Relativ	Sex.Id.
Activity		.1906												
		(114)												
		p=.042												
CABA	.1906		.2830	.4965				-.2971					-.1929	.3742
	(114)		(114)	(114)				(114)					(114)	(114)
	p=.042		p=.002	p=.000				p=.001					p=.040	p=.106
Commit		.2830		.2581	.2376		-.3038		.5009					
		(114)		(114)	(114)		(114)		(114)					
		.002)		p=.006	p=.011		p=.001		p=.000					
Conf		.4965	.2581					-.3938	.2837	.2299	.2313		-.1933	.4704
		(114)	(114)					(114)	(114)	(114)	(114)		(114)	(114)
		p=.000	p.006					p=.000	p=.002	p=.014	p=.013		p=.039	p=.000

	Activity	CABA	Commit	Conf	DIT	Class	Drink	Dual	Emp.	Gender	GPA	Greek	Relativ	Sex.Id.
DIT			.2376											
			(114)											
			p=.011											
Class														
Drink			-.3038									.5289		
			(114)									(114)		
			p=.001									p=.000		
Dual		-.2971			-.3938								.3591	-.2873
		(114)			(114)								(114)	(114)
		p=.001			p=.000								p=.000	p=.002
Emp.			.5009		.2837		-.2245							
			(114)		(114)		(114)							
			p=.000		p=.002		p=.016							
Gender					.2299									
					(114)									
					p=.014									
GPA					.2313									
					(114)									
					p=.013									

	Activity	CABA	Commit	Conf	DIT	Class	Drink	Dual	Emp.	Gender	GPA	Greek	Relativ	Sex.Id.
Greek							.5289							
							(114)							
							p=.000							

Relativ		.3591												
		(114)												

		p=.000												

Sex.Id.		-.2873		.4704				-.2873						
		(114)		(114)				(114)						
		p=.002		p=.000				p=.002						

CHAPTER FIVE: DISCUSSION

Introduction

The purpose of this study was to examine the relationships between college student developmental and demographic variables, and to additionally examine the relationship between these variables and college student alcohol consumption patterns. Relationships between moral development, identity development, and intellectual development and alcohol consumption pattern category (i.e., Abstainer, Drinker, Binger, and Frequent Binger) were investigated. Relationships between alcohol consumption patterns and demographic variables including class, gender, activity level, and Greek membership were also examined. Finally, the study also determined the linear combination of these variables which best predicts student drinking category membership.

This chapter will review the results of the study which were presented in the preceding chapter. A discussion of the findings and their implications for an enhanced understanding of college student development will be presented. In addition to the major findings of the study, additional trends and results will be discussed. This study represents an extension of college student development and college student alcohol consumption pattern research; therefore, the implications of the current findings will be placed within the context of existing literature. The limitations of the research, including threats to generalizability of the findings, will be presented.

The chapter also includes recommendations for future research and practice, which may build upon the findings of the present study.

Summary of Results

The present study was conducted in January and February of 1997, through a randomized mailing to 400 undergraduate students at the College of William and Mary. The 114 respondents were residential, traditionally-aged, volunteer subjects who returned the survey packet through the campus mail system. The sample group of 114 respondents was compared with a group of 22 students who did not respond to the mailing of the four instruments, but who did respond to a fourth mailing of the Core Alcohol and Drug Survey which was mailed in March, 1997. The participants and follow-up group were compared on the following characteristics: drinking category, class, gender, grade point average, involvement in a Greek organization, and participation in campus activities. No significant differences were found between the groups on any of the above variables.

The specific research hypotheses examined the relationships between alcohol consumption patterns, developmental variables, and demographic variables. No relationships were found between class and alcohol consumption pattern category, nor were differences found between men and women in terms of alcohol consumption category membership.

There was no relationship between the Defining Issues Test and drinking category membership, nor was there a relationship found between DIT scores and class membership. There was a significant difference between women and men in DIT scores; women's scores were significantly higher on this instrument.

To examine relationships between identity development and other variables, the Erwin Identity subscales were examined separately. The Confidence subscale, Sexual Identity subscale, and Concerns About Body and Appearance subscale were examined by alcohol consumption pattern category. There were no significant differences found between the four alcohol consumption pattern categories on any of the three EIS subscales. The EIS subscales were also examined by class membership. There was no relationship found between class and Confidence score or CABA score; however, there was an effect for Sexual Identity and class. Seniors had the highest scores, followed by sophomores, freshmen, and juniors. Seniors, who had the highest scores, had significantly higher scores than juniors, who had the lowest scores on this subscale. There were no significant differences found between men and women on any of the EIS subscales.

To examine the relationships between intellectual development and other variables, the Scale of Intellectual Development subscales were examined separately. There was no relationship between alcohol consumption pattern and the Dualism and Relativism subscales. A significant effect for the Commitment subscale by alcohol consumption pattern category was found, with Abstainers having significantly higher scores than frequent Bingers. When analyses were computed to compare Bingers (combined categories of Bingers and Frequent Bingers) with non-Bingers (combined categories of Abstainers and Drinkers) a significant effect was found for both the Commitment and Empathy subscales, with non-Bingers having significantly higher mean scores on Commitment and Empathy than Bingers.

When intellectual development was examined by class, there were no significant effects for the Dualism, Commitment, and Empathy subscales. There was a significant

effect for the Relativism subscale by class; seniors had significantly lower scores than did juniors, who had the highest scores on this subscale. No significant differences were found between men and women on any of the four subscales.

Relationships between involvement in campus activities and alcohol consumption category were also examined. There was an overall effect for activity level by alcohol consumption pattern; post hoc analyses indicated drinkers had a significantly higher number of activities than did Abstainers. The activity variable of Greek membership was examined separately. There was a significant effect for Greek membership by alcohol consumption category; Frequent Bingers and Bingers were significantly more likely to be members of Greek organizations than were Drinkers and Abstainers. There were no demonstrated relationships between Greek membership and any other demographic or developmental variables.

The categories of Leadership and Volunteerism were also created from the Activity level variable. When comparing Volunteerism and alcohol consumption category, no relationship was found between these variables; however, when categories were combined to create the Non-binge versus Binge dichotomy, a significant difference was found between Non-Bingers and Bingers in terms of volunteerism. Non-Bingers were more likely to volunteer for one or more organizations than were Bingers.

When comparing Leadership and alcohol consumption category, a significant difference was found between leaders and non-leaders. Leaders were more likely to be Bingers and Frequent Bingers, and non-leaders were more likely to be Abstainers and Drinkers.

A discriminant analysis was used to determine the linear combination of variables which would best predict group membership in alcohol consumption pattern categories. It was found that Greek membership and Commitment score were the strongest predictors: the function was significant at the .01 level. When the function was examined for predictive accuracy, the function was able to correctly classify 46.5% of cases. While the function correctly predicted 88.2% of the Abstainer group, and 55.6% of the Binger group, the function did not predict membership in the Drinker or Frequent Binger categories any better than chance. When categories were combined into the Non-Binge versus Binge dichotomy, the function was a more powerful predictor of group membership. The function was able to correctly classify 78.1% of cases as Non-Bingers or Bingers.

Discussion of Findings

Descriptive Data

The present study was conducted in January and February of 1997 through a randomized mailing to 400 undergraduate students at the College of William and Mary. The 114 respondents were residential, traditionally-aged subjects. To establish the representativeness of the sample, comparisons were made between the sample characteristics and those of the undergraduate population at the College of William and Mary at the time of the study. The sample included undergraduate students from each class; the respondents were 32 freshmen (28.1%), 32 sophomores (28.1%), 25 juniors (21.9%), and 25 seniors (21.9%). When comparing the sample to the 1996-97 College of William and Mary undergraduate student population, sophomores seem to be over-

represented in the study. The William and Mary class percentages are as follows: 27% freshmen, 23.8% sophomores, 23.2% juniors, and 23.0% seniors.

Women were over-represented in the present study, as there were 76 women and 38 men in the sample (66.7 versus 33.3%); in contrast, the 1996-97 undergraduate population at William and Mary was comprised of 58% women and 42% men. The mean age of the sample was 19.6, slightly lower than the William and Mary undergraduate student mean age of 20.2.

No relationships were found between men and women in terms of alcohol consumption category membership. Wechsler et al.'s 1995 survey used a gender specific measure of binge drinking. Wechsler cited that using the same standard for binge drinking for both sexes underestimates binge drinking and the subsequent health risks for women. In his study, when controlling for body mass index, women who typically drank four drinks in a row were found to have the same likelihood of experiencing drinking-related problems as men who typically drank five drinks in a row. The Core Alcohol and Drug Survey, however, continues to use the same cutoff standard for both men and women. The majority of studies show marked differences between men and women in on binge drinking status and frequency and quantity ratio measures, and research indicates differences between women and men even when using a gender specific criterion for binge drinking. That there were no gender differences in this study is surprising, given that the Core Alcohol and Drug Survey does not employ a gender specific cut-off for binge drinking. Analyses of the present data indicate that while men are more likely to be binge drinkers than women, this difference is not significant. While the reasons for this

lack of difference are unclear, it may be possible that the small subsample of men in this study were less likely to be binge drinkers than college students in general.

The ethnicity data for the sample indicate the over-representation by Caucasian students, in comparison to the undergraduate population at William and Mary. The ethnicity data for the 1996-97 William and Mary student body is as follows: 5.9% were African-American, 0.2% were Native American, 2.1% were Hispanic, and 7.2% were Asian-American. There were also 85 international students in attendance at the College at the time of the study; however, there were no respondents to the study who were from this group. In the sample for the present study, there were three African Americans, one Native American, one Hispanic, and three Asian-American respondents. Minority and international students were clearly under-represented in the sample. Caucasian students therefore comprised 93% of the present sample, while Caucasians represented roughly 85% of the William and Mary undergraduate population.

Thirty-nine of the 114 student respondents were members of a Greek organization (34.2%). Compared to the William and Mary, of which 25% are members of Greek organizations, the sample contained a slightly higher percentage of Greek members. There was no difference by gender for Greek membership, there was a nonsignificant trend for men to be members of fraternities than for women to be members of sororities.

All students in the sample were classified into one of four alcohol consumption categories (i.e., Abstainer, Drinker, Binger, or Frequent Binger) based on their responses to the Core Alcohol and Drug Survey. Of the 114 students in the sample, 34 (30.9%) were Abstainers, 30 (26.3%) were Drinkers, 27 (23.7%) were Bingers, and 23 (20.2%) were Frequent Bingers. In the present sample, therefore, 43.9% of participants reported having

engaged in binge drinking. According to national college survey data, 42-44% of college students are binge drinkers (Presley et al., 1994; Wechsler et al., 1995). In Wechsler's 1995 national survey (n= 17,096), Abstainers comprised only 15.7% of the national sample, while 40.7% were drinkers, 24.1% were Bingers, and 19.5% were Frequent Bingers. In comparison with Wechsler's national data set, it seems the sample in the current study had a higher than expected number of students who do not consume alcohol, and a less than expected number of students who report drinking alcohol but do not engage in binge drinking. The over-representation of Abstainers may have biased the results of this study; sampling bias may have resulted from students who reported no use of alcohol because of their lack of assurance as to the confidentiality and anonymity of the Core survey data. Perhaps the rate of Abstainers at the College is higher than the national average, or those students who do not consume alcohol may have been more likely to respond to the time consuming instrument battery. While the Abstainer and Drinker categories do not correspond with national data, the binge drinker percentages in the present study are well matched to national norms.

Since the response rate to the complete survey packet was relatively low (29%), it was deemed important to check for a potential sampling bias. A sample was obtained from a group of students who did not respond to the initial complete survey packet but who responded to the Core Alcohol and Drug Survey in March, 1997. This group had not responded to the initial mailing, nor two follow-up mailings; they responded to a third follow- up mailing a full two months after receiving the initial mailing. These are students who chose not to respond to a lengthy research instrument battery, and who needed considerable prompting to respond to the two-page Core Alcohol and Drug

survey. It seems reasonable to assume there may exist differences between this sample and those students who responded to the initial mailing. Analyses showed, however, no significant differences between the groups. Chi-square tests for frequencies of gender, class, Greek membership, and alcohol consumption category revealed no significant differences between the sample and the follow-up group for any of the comparison variables. Since comparisons between groups on developmental variables were not able to be determined, important differences may exist between groups in terms of moral, identity, or intellectual development. Important differences may also exist between both of these groups and the students who chose not to respond any of the three mailings.

Findings Related to the Defining Issues Test

The mean Defining Issues Test P-score for the sample was 39.2. P-scores ranged from a low of 3.3 to a high of 76. Placing this mean within the context of other research utilizing the DIT, the students in the sample scored lower than college students in general. Rest (1994), reported adults in general have average P-scores of 40.0, and college students' P-scores tend to average around 42.3. The average DIT P-scores for various student and professional groups are presented in Tables 41 and 42. Years of education has been found to be a strong predictor of moral development, and Rest (1986) reported that DIT scores tend to increase as long as individuals continue in formal education. In this study, there were no trends by class on the DIT; in fact, juniors had the highest mean scores (46.9), followed by seniors (39.3), freshmen (37.2), and lastly, sophomores (35.4).

This finding contrasts with previous research, which indicated years of college was a significant predictor of DIT score (Rest and Thoma, 1985). Only longitudinal research can effectively determine how years in college affect rates of moral growth, as

this cross-sectional design does not reflect rates of growth over time. In comparison with other cross-sectional studies, however, the mean scores by class are particularly low for seniors. As is indicated in Table 43, seniors in this study had lower mean scores than the seniors included in any of the studies summarized by McNeel (1994). Using the effect size formula recommended by Pascarella and Terenzini (1991, p.15), effect size for the difference between freshman and senior scores is calculated by subtracting the freshman score from the senior score, and dividing the difference by the freshman standard deviation. Using this formula, the effect size for the present study is 0.12, a small effect compared with the effect sizes reported in the other college studies in Table 73. It is possible that the freshmen responding to the present study are exceptionally high in moral development. Perhaps the freshmen who took the time to complete the survey instruments were more psychologically mature than college students in general; however, the mean freshman DIT score was still lower than the average for college students in general.

There was a nonsignificant trend for P-score to decrease with level of drinking. Abstainers had the highest means (41.7), followed by Drinkers, (39.1), Bingers (39.4), and Frequent Bingers (35.6). Interestingly, the individual with the highest DIT P-score (p=76) was a freshman woman, classified as an abstainer, and had a 4.0 grade point average. The individual with the lowest P-score (p=3.3) was a junior woman, classified as a frequent binger, with a 2.8 grade point average.

The P-scores for women were significantly higher than for men in the sample. The mean P-score for women (p=42.1) was significantly larger than the P-score for men (p=33.3). Rest's data summarizing studies which utilized the DIT (n=2,886) shows college males with average DIT p-scores of 44.1 and women with average P-scores of

45.9 (See Table 42). Rest demonstrated women score slightly higher than males on the DIT. Research has also shown that gender accounts for only a small percentage of the variance in DIT scores (Rest, 1994). These findings do not support Gilligan's (1982) claim that Kohlberg's theory of moral reasoning is sexist and invalid for women. Since women were over-represented in the present study, however, it is difficult to warrant conclusions about gender differences based on such a small subsample of men.

There were interesting relationships between the DIT and other variables. DIT scores were positively related to grade point average (GPA); with an alpha level of .05, there was a significant correlation between GPA (M=3.12, SD=.61) and DIT P-score (M=39.2, SD=17.4), $r = .23$, $p<.05$. Other studies have demonstrated a negative relationship between Greek membership and DIT score (Kilgannon & Erwin, 1992). The present study did not find a relationship Greek membership and DIT score; however, Greek students had lower mean scores (p=35.7) than did non Greek members (p=42.1).

Table 41

Different Groups on the DIT P Score

P-Score	*Group*
65.2	Moral philosophy and political science graduate students
59.8	Liberal Protestant seminarians
52.2	Law students
50.2	Medical students
49.2	Practicing physicians
47.6	Dental students
46.3	Staff nurses
42.8	Graduate students in business
42.3	College students in general
41.6	Navy enlisted men
40.0	Adults in general
31.8	Senior high school students
23.5	Prison inmates
21.9	Junior high school students
18.9	Institutionalized delinquents

Rest, 1994, p. 14

Table 42

Average DIT P-Score Grouped by Education and Sex

Grade	Males	Females
Junior High	19.1	19.8
Senior High	28.7	30.4
College	44.1	45.9
Graduates	61.0	63.0

Rest, 1994, p.14

Table 43

Cross-Sectional Percent Principled Reasoning for 4-Year Freshmen-Senior Comparisons, With Effect Size (d)

College/Univ.	Freshmen	Seniors	N	SD	Change*	d**
Liberal Arts:						
Bethel (1994)	34.8	45.3	920 (433)	11.28	10.5	.93
Alverno (1983)	35.2	49.2	70 (53)	10.56	14.0	1.33
Bethel (1991)	33.4	42.9	360 (36)	11.69	9.5	.81
Christian College						
A (1989)	35.4	39.8	30 (30)	7.50	4.4	.59
B(1989)	37.0	44.0	35 (30)	12.83	7.0	.55
C(1989)	38.6	48.0	34 (33)	9.21	9.4	1.02
Mainline(1994)	43.4	51.1	57 (46)	13.34	7.7	.58
Wheaton(1985)	41.5	52.2	119 (58)	15.48	10.7	.69
Bible Colleges:						
Columbia Bible	32.4	36.7	212 (46)	14.89	4.3	.29
Bible Col. B	30.3	39.8	39 (32)	13.98	9.5	.68
Universities:						
Iowa (1991)	37.8	46.8	112 (40)	17.54	9.5	.51
CAIrvine1986	41.4	44.4	85 (56)	14.82	3.1	.21
West Pnt (1983)	34.4	42.6	167 (47)	11.5	8.2	.72

McNeel, 1994, p. 32.

*freshman-senior differences are significant ($p<.01$) except for Christian College A ($p<.03$, one-tailed). Statistical tests were not reported for Columbia Bible and University of California, Irvine.

**effect size is the senior minus freshman difference divided by the freshman standard deviation.

DIT scores were negatively related to scores on the DIT Dualism Scale (r=-.39, p<.01), while they were positively related to Commitment (r=.24, p,.05) and Empathy (r=.28, p=.01). These relationships fit with previous research which indicated the conditions which promote moral growth are also those which facilitate growth in intellectual development. Kohlberg's (1969) conditions for growth include: continued intellectual challenge, exposure to divergent views and cognitive moral conflict, and contact with others at the post-conventional level of moral judgment. McNeel (1994) also described the conditions which seem related to moral growth in college: participation in voluntary off-campus learning experiences, gentle and nonauthoritarian out-of-class contact with professors, and simultaneous growth in identity development. If a student is challenged participate in experiences in which he or she has ample opportunities to engage in intellectual perspective-taking, he or she will increasingly encounter heterogeneous value systems (Mason & Gibbs, 1993). By striving to make sense of these diverse sets of values, students will be able to move towards the development of personal belief and value systems. This transition is measured specifically in Perry's scheme of intellectual development; the transition from positions of dualism and relativism towards commitment to a personal belief and value system is one of the primary tasks of the college years (Perry, 1970).

Findings related to the Erwin Identity Scale

There were no significant differences between drinking category groups and scores on the three EIS subscales. Interesting trends were noted for the Confidence, . Sexual Identity and Concerns About Body and Appearance means by alcohol consumption category. On the subscales, there was a trend for Abstainers and Drinkers to

have higher scores than for Bingers and Frequent Bingers. On the Sexual Identity Scale, the trend was for Abstainers and Drinkers to have higher scores than Bingers and Frequent Bingers, with Bingers having the lowest scores. On the CABA subscale, the same trend was noted. Frequent Bingers had the highest scores on the Confidence subscale; however, when comparing between Non-Bingers and Bingers, the Non-Binge group had higher mean scores (M=86.2) than did the Binge drinking group (M = 84.4). Therefore, there was a trend for heavier drinkers to have lower levels of identity development in the present study. This finding does not support previous research (Nezlek et al., 1994; Edmunson et al., 1994; Snortum et al., 1987) which portrayed binge drinkers as possessing a greater sense of self-concept than those students who did not binge drink. The authors explained their results in terms of binge drinkers' ease of integration into the campus community, as binge drinkers engage in widely-accepted and even revered campus drinking norms. This sense of social security, however, may not be related to identity development as it applies to the development of autonomy and interdependence, specified in Chickering's vectors of development during the college years. Binge drinking students are seemingly not achieving the complex development described in Chickering's Vectors 5-7:

> **Vector 5: Freeing Interpersonal Relationships.** As individuals develop their personal identities, they are increasingly able to tolerate diversity in their interactions with others; this openness contributes to the development of intimate relationships.

> **Vector 6: Developing Purpose.** This vector involves the examination of the questions "Who am I going to be? Where am I going?" It requires the integration

of priorities in various aspects of the student's life, including vocational aspirations and life-style choices

Vector 7: Developing Integrity. This involves the "clarification of a personally valid set of beliefs that have some internal consistency and that provide at least a tentative guide for behavior" (Chickering, 1969, p. 17)

When examining the EIS subscale scores by class, there were no significant effects for the Confidence subscale. Freshmen and seniors had the highest scores on this subscale, with juniors having the lowest Confidence scores. On the Sexual Identity subscale, a similar pattern was found, with seniors having the highest scores, followed by sophomores, freshmen, and, lastly, juniors. Juniors had significantly lower scores than did seniors on the Sexual Identity subscale. While there were no significant effects found for the Concerns About Body and Appearance subscale, the trend again showed juniors having the lowest overall scores. Freshmen had the highest overall scores on this scale, followed by seniors and sophomores.

It is interesting to note that juniors scored significantly lower than seniors on the Sexual Identity subscale, and also had the lowest scores on the Confidence and Concerns About Body and Appearance Subscales. As demonstrated by Erwin and Kelly (1985) the factors most associated with identity development in college are satisfaction with academic achievement and making a vocational commitment. Perhaps students during the first few weeks of their second semester of the junior year are questioning themselves to a greater extent than their peers in other classes. This is a particularly unstable time for students in their academic and career development, as students are facing the pressures of

applying for summer internships and in preparing for graduate school. It is unclear whether the students from the junior class who responded to this study are representative of juniors at the College; however, the 25 juniors in this sample seem to feel more unsure of their competencies than do their peers from other classes.

No significant differences were found between men and women on any of the EIS subscales. While the differences were nonsignificant, women had higher scores than men on all three subscales. As with the DIT, it is difficult to make conclusions regarding gender and identity development based upon such a small subsample of men.

Findings Related to the Scale of Intellectual Development

There were no differences between groups by drinking category on the Dualism, Relativism, or Empathy subscales. There was, however, a significant effect for the Commitment subscale. Abstainers had the highest mean (M=71.5), followed by Drinkers (M=69.1), Bingers (M=62.5), and Frequent Bingers (M=59.6). Post hoc analyses indicated Abstainers had significantly higher scores on the Commitment subscale than did Frequent Bingers.

While the effects were non-significant, there was a trend for Frequent Bingers and Bingers to have the highest scores on the Dualism and Relativism scales. On the Commitment and Empathy subscales, however, Abstainers had the highest scores. When alcohol consumption pattern groups were combined to form the Non-binge versus Binge dichotomy, Non-Bingers had significantly higher Empathy scores than did Bingers. On measures of the highest levels of intellectual development, there seem to be important differences between those students who binge drink and those who do not.

The mean scores for the SID subscales were also examined by class. On the Dualism scale, in which high scores place students at the most concrete, black-white level of intellectual development, there were no significant effects by class. Trends by class show the junior class as having the highest scores (M= 51.2). Seniors had the lowest scores (M=45.3), followed by sophomores (M = 46.1) and freshmen (M=49.2).

High scores on the Relativism subscale indicate a student's view of knowledge as relative and contextual, as a student generally resists choosing from among alternatives at this level. According to developmental research, level of education is a significant predictor of intellectual development (Stephenson & Hunt, 1977; Harris, 1984); therefore, there would be an expected trend by class, with freshmen and sophomores having higher scores on this scale than juniors or seniors. For this sample, there was a significant effect for class on the Relativism scale, and post hoc analyses indicated seniors as having significantly lower scores than juniors. As with the scores on the Dualism scale, the sample followed the expected trend on the Relativism scale, with the exception of the junior class, who had the highest mean score.

On the Commitment subscale by class, there was no significant effect; the trend was for seniors to have the highest scores (M = 71.2), followed by juniors (M = 66.0), freshmen (M = 65.0), and sophomores (64.1). There were also no significant differences by class on the Empathy subscale. The trend for the Empathy subscale was for juniors to have the highest scores (M = 56.6), followed by freshmen (M = 52.2), seniors (M = 52.2), and sophomores (M= 52.). While the difference is non-significant, it is interesting that juniors had the highest scores on this subscale, indicating the highest level of intellectual development, while juniors also had the highest scores on the Dualism and Relativism

subscales, indicating the lowest levels of intellectual development. The trend for the junior class does not fit a clear developmental model, as juniors had the highest scores on the DIT, a measure of moral development, and the Empathy scale, a measure of development which reflects complex intellectual development. Juniors also had high scores on the scales which indicate concrete and relative levels of intellectual development, and had low scores on measures of confidence, comfort with sexual feelings, and comfort with their bodies and physical appearance. It is unclear why the results for the junior class do not correspond with findings with developmental research.

SID subscales were also examined for differences by gender. There were no significant differences between men and women on any of the four subscales. Although the difference was non-significant, a trend was noted for women to have higher mean scores compared to men on the Relativism, Commitment, and Empathy subscales. This finding supports previous research (Harris, 1984) which did not find any differences between men and women in level of intellectual development as measured by the Perry scheme.

The Scale of Intellectual Development subscale analyses produced noteworthy findings, particularly for the Commitment subscale. Students at the level of Commitment recognize their views as valid, and are committed to a value system and personal method of processing information. While valuing their own belief system and accepting the consequences of this commitment, they are also able to recognize and accept the values of others as valid. Perry (1970) believed the goal of college is to help relativistic students learn how to make intellectual and personal commitments. As students encounter new and challenging environments in which they are brought into contact with diversity and

multiple world views, they may learn to examine previously unquestioned beliefs, and subsequently form a personally-derived belief and value system.

In the present study, those students who were binge drinkers and frequent binge drinkers were less likely to have made this transition to personal and intellectual commitments. As asserted by Lavallee, Gourde, and Rodier (1990), it is easier for students to conform to institutional demands rather than take a personal stand, especially if the institutional climate favors homogeneity in student beliefs and behaviors. For students to make the transition to positions of commitment, they must accept responsibility for themselves, rather than conforming to the standards of others.

> To be able to break with others' views necessitates more than simple knowledge: it requires maturity, character, and autonomy which can only be achieved with experience, critical reflection, and a sense of responsibility- processes which few people seem to actualize. (Lavallee, Gourde, & Rodier, 1990, p. 410)

As demonstrated by this study, students who are immersed in a culture in which conformity to peer norms, including the norm of binge drinking, are less likely to have experienced the conditions necessary to facilitate the ability to break with their peers in order to develop their own value systems. Students who continually engage in heavy drinking, despite its considerable negative academic, behavioral, and health-related consequences, are less likely to have questioned the norms of their peer group, and are less likely to have moved to a level of development whereby they can make responsible drinking choices based on a personally-derived set of beliefs and values.

Development is domain specific; however, there are relationships between Intellectual Development, Identity Development, and Moral Development. As noted above, the DIT is negatively related to the SID subscales of Dualism and Relativism, and is positively related to Commitment and Empathy. There were no relationships found between the DIT and the EIS subscales of Confidence, Sexual Identity, and Concerns About Body and Appearance.

The subscales of the EIS are significantly intercorrelated in this study; this finding was also demonstrated by Erwin and Delworth (1983). There is a significant correlation between Confidence and CABA (r=.50), Confidence and Sexual Identity (r=.47), and Sexual Identity and CABA (r=.37). It seems reasonable to expect strong relationship between the subscales, as each subscale measures different but overlapping facets of the identity construct.

The Scale of Intellectual Development, however, is derived from cognitive developmental theory, measures qualitatively distinct stages, and indicates where an individual falls within a hierarchical progression. In his normative studies for the development of the SID, Erwin found negative correlations between Dualism and Relativism subscales, yet the present study indicated a positive relationship between Dualism and Relativism (r=.36). Erwin also found positive relationships between Commitment and Empathy, and the present study also found a strong, positive correlation between Commitment and Empathy (r=.50). Erwin and Delworth (1983) suggested individuals who are able to empathize with the needs of others have likely made commitments in one ore more areas of their lives; the authors therefore expected these two subscales to be highly related.

An examination of the relationships between the SID and EIS subscales yielded interesting patterns. The correlations between the SID subscales of Dualism and Relativism and the EIS subscales of Confidence, Sexual Identity, and Conceptions about Body and Appearance were negative. Dualism was negatively correlated with CABA (r=-.29) and Sexual Identity (r=-.37). Relativism was negatively correlated with all three subscales: CABA (r=-.19), Sexual Identity (r=-.37), and Confidence (r=-.19)

Erwin and Delworth's (1983) normative studies found the correlations between Commitment and the EIS subscales to be moderate and positive. In the present study, Commitment was positively correlated with CABA (r=.28) and Confidence (r=.26). According to Erwin and Delworth (1983), students who are generally rigid in their thinking or who make meaning of the world in a contextual and uncommitted way may also feel uncomfortable with their bodies or feelings, and lack confidence in their abilities or appearance. Conversely, students who have reached positions of Commitment may possess more confidence in themselves, may be more aware of their feelings, and are more comfortable with their bodies and physical appearance. As described above, these may not be the students who are most likely to be engaging in heavy drinking, an activity which is accepted and even promoted by the cultures of most colleges and universities. Most students at levels of Commitment are therefore able to feel confident with their decision not to participate in a social "rite of passage ritual" (Butler, 1993).

Findings Related to Activity Level

The number of activities in which each student participated was examined as a measure of student involvement. This measure included membership and active involvement in any of the following types of activities: Greek organizations; athletic

organizations; volunteer activities; political/social activism organizations; international/minority organizations; performing arts groups; or involvement in a student-run newspaper or magazine. The mean number of activities per respondent was 1.8. When examining activity level by alcohol consumption category, a significant effect was found; post hoc analyses indicated a significantly higher activity level for Drinkers (M=2.2) than for Abstainers (M=1.5). Drinkers engaged in the largest number of activities, followed by Bingers (M=2.0), Frequent Bingers (M=1.7), and Abstainers.

Previous research has shown that those students who are binge drinkers are more likely to be socially integrated into the campus community (Nezlek et al., 1995). The present study found that Abstainers were engaged in significantly fewer student activities than were Drinkers, and while the differences were non-significant, Bingers and Frequent Bingers also participated in activities to a greater extent than did the non-drinking group.

Since the present study included activity level as an ordinal variable (number of activities per student), no information was obtained regarding a student's level of involvement in each activity. It is feasible that student involvement in a highly demanding, time consuming activity such as an intercollegiate athletic organization is not truly comparable to participation in a study club or activity which requires only several hours of involvement per month. Research has indicated that student athletes, and those who rate sports as "very important," are more likely to be binge drinkers than are other students (Wechsler & Dowdall, 1995). As there were 18 members of intercollegiate athletic organizations in the present study, the number of student athletes in the study may have also influenced the results on this variable. These students may have been more likely to feel integrated into the campus community, and to feel competent both

physically and socially. Although athletics was not included as a variable in the present study, future research may target the binge drinking and developmental patterns of student athletes in comparison to other students. It seems that instead of examining student involvement through the number of activities in which a student participates, involvement needs to be examined by specific type of activity and actual level of involvement in each activity.

Additionally, Greek membership was included as one of the activities in the activity level variable. Since previous research has demonstrated that Greek membership is significantly related to related to binge drinking (Wechsler et al., 1995), Greek membership was isolated as a separate variable in the present study. There was a significant effect for Greek membership by alcohol consumption category membership. Post hoc analyses revealed a significant difference between Abstainers and Drinkers compared to Bingers and Frequent Bingers, indicating Bingers and Frequent Bingers in this sample were significantly more likely to be members of a fraternity or sorority than were Abstainers or Drinkers. Due to the importance of the variable in determining binge drinking status, this finding may have influenced the results for the activity level variable. It may also have influenced the lack of gender differences, however, women were no more likely to be members of Greek organizations than were men.

To examine the activity level variable more closely, categories of Volunteerism and Leadership were created for supplemental analyses. It was found that whether or not a student reported being involved in volunteer work was not related to alcohol consumption category. When alcohol consumption categories were combined into two groups (Bingers versus Non-Bingers), a significant effect was found for the Volunteerism variable.

Volunteers were more likely to be Non-Bingers, and Bingers were less likely to participate in volunteer activities. Wechsler and Dowdall's (1995) investigation of correlates of college student binge drinking also found students who reported no participation in volunteer work were more likely to be binge drinkers.

Whether or not a student was a leader in one or more organizations was related to drinking category, as Bingers and Frequent Bingers were more likely to be leaders than Abstainers and Drinkers. Greek membership was significantly correlated with Leadership (r=.28), as many of the leadership positions reported occurred within the context of membership in Greek organizations. Confidence scores were also related to leadership (r=.22),.

It is disturbing that Bingers and Heavy Bingers were more likely to be leaders of organizations than were Abstainers and Drinkers, as these are individuals elected by their respective organizations to provide guidance, enforce policies, and serve as positive role models for members. The study of Cohen (1982) found no significant differences between leaders and members of Greek organizations on scores of the Defining Issues Test, and suggested Greek members are more likely to elect leaders whose reasoning is similar to their own. Hughes and Winston (1987) also demonstrated that while fraternity pledges and their non-affiliated peers did not differ significantly in interpersonal value systems before their pledging period, the authors found differences between the groups in a post-test after the pledging period. They found pledges came to value independence and freedom in interpersonal relationships less and to value leadership more than did their non-affiliated peers. In addition, after their pledge period, new members' values came to be almost identical to those of members who had been affiliated with the group for a year

or more. This finding has powerful implications for the pledge education process, as it seems that new members in this study incorporated the values of the group during the pledging period. It also suggests the potential influence of leadership on the social standards of college organizations. If leaders are likely to be binge drinkers, the expectations for new members will continue to include binge drinking (Kuh & Arnold, 1993). These members in turn will elect leaders from the organization which best represent their social customs, including binge drinking; the relationship between binge drinking and leadership will be thereby perpetuated. As suggested by Winston and Williams (1985), ". . . some student organizations may support continuation of late adolescent peer relationships, which are often subject to the pressures of conformity to group norms and emotional insecurity" (p.58). The findings of this study seem to support the authors' conclusion.

Predicting Alcohol Consumption Pattern Category: The Discriminant Analysis

A discriminant analysis was chosen as the preferred statistical procedure to investigate the linear combination of college student developmental and demographic variables which would best predict alcohol consumption pattern category. The most powerful contributors to the function were Greek membership and Commitment score. In examining the effectiveness of the discriminant function through correct case classification into alcohol consumption pattern category, it was found that the function correctly classified 88.2% of Abstainers, 13.3% of Drinkers, 55.6% of Bingers, and 17.4% of Frequent Bingers. While the overall function reached statistical significance, it seems that the function's ability to correctly predict group membership had practical significance in predicting membership in the Abstainer, and to a lesser extent, the Binger

group only. A separate discriminant analysis was used to examine the linear combination of variables which best predict whether or not a student was classified as a Binge- or Non-Binge Drinker. The function was able to correctly classify 78.1% of cases, a significant improvement over chance prediction. Eighty-four percent of Non-Bingers were correctly classified, and 70.0% of Bingers were correctly classified by the function. When using four categories, the predictor variables were not able to effectively detect distinctions among groups. However, broader groupings (i.e., Bingers versus Non-Bingers) provided more prediction power. Knowing a student's score on the Commitment subscale of the SID and whether he or she is a member of a Greek organization can therefore provide a fairly accurate prediction regarding that student's binge drinking status. Students who are members of Greek organizations and who have lower scores on the Commitment scale are more likely to be binge drinkers than are students who are non-affiliated with Greek organizations and who have higher scores on the Commitment scale of the SID.

Limitations of the Study

This research was limited by the following:

1. There was a low response rate to the present study (29%), therefore, caution must be used interpreting results. The lack of a trend by class on any of the developmental instruments may be an indication of the difference between this sample and college students in general; developmental studies generally reflect a growth trend by class in identity, moral, and intellectual development. These trends were not seen for any of the subscales in the present study. Although there were no significant differences between the sample and the comparison group on demographic variables, there may

have been important developmental differences which were not determined. Further, there may have been important differences between the response group of 114 students and the students who chose not to respond to the Core Survey, even after three mailings. It is possible that these students are less conscientious, and possibly less developmentally mature than those students who responded to the complete survey packet.

2. This study was conducted at a single institution, therefore generalization to the college student population in general is limited. The sample for the current study was limited to traditionally-aged, residential students at a highly selective, liberal arts college. It is reasonable to assume the student body at William and Mary differs in several significant ways from the general college student population. Men were under-represented in the study, as men constituted only 33.3% of the sample. Minority and international students were also under-represented in the study, comprising only 7% of respondents.
3. The administration of the DIT, EIS, and SID through a randomized mailing as opposed to a group administration may have resulted in testing effects. Students may have not understood the directions clearly, particularly for the DIT. Students may have lacked a clear understanding of the rating and ranking steps of the DIT; however, the ratings seemed to correspond with rankings for all respondents. Students' inability to ask questions related to the DIT directions may have contributed in part to the lower-than-expected DIT mean P-score for the sample.
4. There exists the potential of a reporting bias on the Core Alcohol and Drug Survey. This study relied completely upon student self reports of alcohol use; students may under- or over-report their use.(Wechsler et al., 1995). A number of studies have

established the validity of self-reports of alcohol and substance use by corroborating the self-reports with known outside measures. These is also evidence that self-report do remain consistent over time (Wechsler et al., 1994). It is likely that if students felt uncomfortable in reporting their alcohol and other drug usage, they would not have responded to the survey.

5. Erwin (1988) discussed the limitations of the Empathy scale because there were so few students in his normative group who had reached this level. He cautioned against the interpretation of the scale because of its lack of direct relevance to the Perry scheme. In the present study, the Empathy scale correlated with the Commitment scale as expected, and was related to binge drinking, as was the Commitment scale. However, the caution issued by Erwin should be noted in the interpretation of this scale.
6. The measures utilized in this study may not have been sensitive to specific but important aspects of college development. For example, academic confidence, social confidence, and commitment to a career choice are each included as part of the global scale of Confidence in the Erwin Identity Scale. Interesting relationships may be found between these specific components of confidence and other variables. The limitations in the chosen activity level measurement were discussed above. Future research can separate these variables to examine student development in specific domains not highlighted by broad measures of cognitive and psychosocial development.

Implications

According to college student development theory, students transfer dependence on parents to their peer group in late adolescence. As they arrive at college, they gradually begin to make meaning of the world through forming a sense of independence from both peers and parents ; this generally occurs as a result of the challenges presented to them by college curricular and co-curricular experiences, and can be specifically intensified through conditions which are more likely to exist at liberal arts colleges than may be found at professionally-oriented institutions. The college years can serve as a concentrated period of time in which students engage in diverse experiences, and this period provides the opportunity for considerable reflection on these experiences. McNeel (1994) described the purpose of liberal arts education as ". . . the purpose of bringing students in contact with a highly diverse range of facts and views about the world. . . to see things from the other person's viewpoint and to appreciate systems different from their own" (p. 28).

As a student moves from dependency to independence to interdependency, he or she must establish a workable balance between what is "self" and what is "other". Kegan (1982) termed this process the "evolution of the self," and Baxter-Magolda reviewed this evolution through the lens of co-curricular experiences of students. She explained the evolutionary process as revealed through students' changing interactions with peers during the college years:

> Peers had a substantial influence on students' behavior until students discovered their own voices, at which point they began to make decisions about peer influence. Peers also made the students confront diversity, increased awareness of diversity, and eventually fostered its appreciation. The extensive support that students gained from

> peers probably balanced the contradictions that they introduced. Close friends provided continuity by staying with students during the transitions from being dependent to independent to interdependent with peers. (p.338-339)

Baxter-Magolda noted the connection between the effects of epistemological development on both curricular and co-curricular experiences. Students' ability to create meaning from multiple perspectives thereby enables them to choose from among an array of alternatives in formulating their own views. While this is a demand increasingly placed upon them in the classroom, it is also a necessary component of development outside the classroom. The findings of this study may represent at least one manifestation of student progression in the development of self. Binge drinking may serve as a highly visible symbol of a student's inability to progress in the evolution towards autonomy. As suggested by Klein (1994), the college years may serve only as a period of "protracted adolescence" if there is continued conformity to peer norms throughout the years of college. Binge drinking is one area in which the consequences of this continued conformity are detrimental in terms of resulting academic, behavioral, and health-related problems.

Wechsler felt that the emphasis of administrators and staff should be to empower students to recognize the detrimental effects of binge drinking on campus life, and to voice their concerns to their peers. He encouraged administrators and staff to support students in their refusal to tolerate the second-hand effects of binge drinking. If students can recognize alternatives for social behavior on campus, they will be less likely to accept the consequences of heavy drinking on the campus community as a whole. This is underscored in Wechsler et al.'s (1995) assertion:

> . . . binge drinking is the Number One public health hazard and the primary source of preventable morbidity and mortality for the more than 6 million full-time college students in America . . . college binge drinking (as opposed to moderate or occasional drinking) must be clearly identified as a major acute and long-term health problem, and its standing in the agenda of higher education institutions and public health must be raised dramatically. (p. 926)

Suggestions for Future Research

The most powerful studies in the college student development and college drinking pattern literature have employed longitudinal designs. Investigations of students as they grow and change throughout the four years of college provide rich data which cannot be gleaned from cross-sectional designs. As the present study employed a cross-sectional design, it is difficult to determine the nature of the relationship between development and drinking as students progress through college. Future research, therefore, should include longitudinal designs which may further examine the complex relationships between college student gender, class, development, student involvement, and drinking patterns.

Future research may also include larger sample sizes which would provide confidence that the findings of the present study hold for the college student population in general. Similarly, as the College of William and Mary is a highly selective liberal arts college with a homogeneous population, future research should include samples of students from more heterogeneous institutions. The generalizability of these findings may not extend to samples who are more diverse in demographic variables including: age, race, socioeconomic status. Further, the traditional, residential students who participated

in the present study may differ in significant ways from non-traditional, commuter students. Future studies can examine the developmental needs of the growing population of non-traditional students, and how their alcohol use impacts development. It is likely that the development of those students who are employed part or full-time, who have parental responsibilities for one or more children, and who are responsible, in part or in full, for financing their educational expenses is quite different from the development and drinking patterns of residential, traditionally-aged students.

Perhaps future research could include a qualitative component, incorporating in-depth interviews with students at intervals throughout their years in college, and additionally involving post-graduation interviews. It is possible that the internal struggles of students in developing a sense of self apart from the peer group may best be understood through listening to students, and providing them with opportunities to articulate these transitional feelings and ideas. An added effect of such interviews would be for students to have a venue through which to discuss their indecision and confusion as part of the transition towards more complex levels of development. Many students may graduate from college without ever having their voices validated by a caring professional who is truly interested in their concerns; therefore such opportunities for reflection through open-ended interviews would provide a much richer portrait of student development.

Other theoretical constructs may be considered in studying this issue, including Loevinger's (1976) theory of ego development. The transition between the levels of Conformity to the Conscientious level seem particularly salient for the study of this issue. The use of semi-projective measures for moral, identity, and intellectual development

may also provide a more comprehensive understanding of development than did the objective measures used in the present study.

Suggestions for Developmental Programming

College students who binge drink on a regular basis may not possess the tools necessary to make drinking choices which contradict existing campus social norms. Students who have not yet developed their own voice apart from peer influences do not have the ability to break with the opinions and behaviors of their peers (Lavallee, Gourde, & Rodier, 1990).

For professionals to effectively assist students, they must therefore focus on providing students with opportunities which facilitate psychological growth. Cognitive development research has demonstrated the effectiveness of deliberate psychological education in enhancing student psychological development. Suggestions for future research therefore include the design of interventions which are specifically tailored to the needs of dualistic and relativistic students, in efforts to promote development to levels of commitment. This can be achieved through such means as seminars, faculty and staff training, residence hall structuring, peer-mentoring programs, and other activities outside of the traditional college curriculum. Since members of Greek organizations are more likely to be influenced by the pressures of conformity to group norms, including the norm of frequent binge drinking, specific programs can be built into the fraternity education process for all organizations. Developmental interventions designed for each organization could empower students to recognize alternative forms of social behavior, to assert their identities apart from the group, and to assist members in questioning the values of their organization.

The implications of such institution-wide action to promote growth and thereby promote responsible decision-making may shed some light on future directions for alcohol prevention programs on college campuses. Such interventions will enable prevention programs to be reconceptualized to include the conditions which help students learn to construct knowledge in the co-curricular areas of their lives. Baxter-Magolda believes ". . . . helping students create their own informed perspectives is crucial to promoting responsible community membership on campus and beyond" (p. 391-92). She suggests professionals can help students reflect upon and process social issues such as racial prejudice, sex discrimination, sexual violence, civility, and obligations to others. According to the findings of the present study, the issue of binge drinking and alcohol consumption choices can also be added to Baxter-Magolda's list of pressing social issues. Once students are equipped with a cognitive base from which they can make decisions based upon a personally-derived value system, they can be better prepared to make responsible choices in the area of alcohol consumption.

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APPENDIX A

The College Of
WILLIAM & MARY

Office of Student Activities

P.O. Box 8795
Williamsburg, Virginia 23187-8795
757/221-3300 • Fax 757/221-3451

February 3, 1997

Dear Student,

In order to serve you better, the College's Alcohol Task Force is conducting a survey of current alcohol and drug use at William and Mary. You may have seen or read material detailing findings of previous surveys. Now we are repeating the survey to update our information.

Your name has been randomly chosen for participation in this annual survey of alcohol and drug use at the College. This is an important study, and it gives us the ability to understand what is occurring on our campus and enables us to compare William and Mary with national norms.

This is an anonymous study, and we would appreciate your candid and honest responses to all of the questions. The enclosed questionnaire will only take a few minutes of your time. When you have completed the survey form, please return it to us via Campus Mail in the enclosed self-addressed large envelope. Then, mail us the enclosed numbered past card separately to let us know that you have turned in your questionnaire. Do not put the card in the same envelope with the completed questionnaire, as it would compromise your anonymity. You should use Campus Mail for all returns - both the post card and the large envelope.

You will note that the top right hand corner of the survey form has a shaded area marked "For Official Use Only." This area enables us to ask additional questions specific to our campus. Please refer to the enclosed sheet of additional questions which should be answered in this box.

If you have received in this packet additional survey instruments from a doctoral candidate in counselor education at the College, we encourage to assist with this study also. Please follow the instructions on the letter accompanying this material.

Thank you for taking the time to complete this questionnaire. We will be publicizing the results when they become available. In the meantime, if you have any questions or concerns, you may contact me at the number listed above, or the Substance Abuse Educator, Mary Crozier, at 221-3631, or the Health Educator, Cynthia Burwell at 221-2195.

Sincerely,

Kenneth E. Smith, Jr.
Associate Vice President
for Student Affairs

Chartered 1693

December 18, 1996

Dear William and Mary Student:

I am a doctoral candidate in counselor education at the College, and am currently conducting dissertation research which examines the relationship between college student alcohol consumption patterns and intellectual, identity, and moral development. In order to explore this relationship most fully, I need your assistance with my research. Thank you for agreeing to complete the Core Alcohol and Drug Survey. Enclosed you will also find three inventories: the Scale of Intellectual Development, the Erwin Identity Scale, and the Defining Issues Test. I would appreciate your taking the time to complete these inventories as a part of my dissertation study. As a graduate student, I know how scarce free time can be; I therefore greatly appreciate your participation in this project.

By returning the completed inventories, you are indicating your consent to the use of your responses as part of a research project conducted by Laura Hensley, doctoral candidate, in conjunction with the Office of Student Affairs at the College of William and Mary. As with the Core Survey, your name will in no way be associated with your responses, so that all results are completely anonymous. If you have any questions concerning the study, or if you wish to receive a copy of the project when it is completed, you may contact me by e-mail at lghens@mail.wm.edu.

As you are one of the William and Mary undergraduate students selected to participate in this study, I wish to emphasize the value of your contribution to my dissertation research. Thank you again for your time and support.

Sincerely,

Laura G. Hensley, Ed.S.
Counselor Education
College of William and Mary

Enclosures:
Scale of Intellectual Development
Erwin Identity Scale
Defining Issues Test

(Note: When completing the instruments, please place your responses directly on the instrument forms; in efforts to conserve paper, no answer sheets are included)

The College Of
WILLIAM & MARY

Office of Student Activities

P.O. Box 8795
Williamsburg, Virginia 23187-8795
757/221-3300 • Fax 757/221-3451

March 10, 1997

Dear Student,

How would you like to have an intimate dinner for two in one of Williamsburg's finest restaurants at no cost to you, or a gift certificate from the Cheese Shop, or even free gifts from businesses such as Blue Ridge Mountain Sports? Sounds good doesn't it? What do you have to do to get in on these gifts? Just complete the Alcohol and Drug Use Survey and return it promptly.

Please forgive our persistence in mailing you yet a third packet, but we have not yet received an indication that you have filled out and returned the enclosed Alcohol and Drug Survey. We need as close to 100% participation in the survey as possible to obtain valid and reliable information. This is an important study for the College, and it enables us to compare William and Mary with national norms.

If you haven't already done so, please take a few minutes to fill out the enclosed questionnaire. This is an anonymous study, and we would appreciate your candid and honest response to all of the questions. When you have completed the questionnaire, please return it to us via Campus Mail in the enclosed self-addressed large envelope. Then mail us the enclosed numbered post card separately to let us know that you have turned in your questionnaire. Do not put the card in the same envelope with the completed questionnaire, as this would compromise your anonymity. You should use Campus Mail for both the card and the large envelope.

From all of the returned cards indicating returned questionnaires, we will have drawings on April 17 for the gifts and gift certificates. You will be notified by phone if you are a winner. So, don't delay. Get out your pencil, complete the questionnaire (it doesn't take long), and return it and the card. You could be one of our winners.

If you have already returned the questionnaire, please accept our thanks and feel free to discard this packet. If you have any questions or concerns, you may contact me at 221-2684 or 221-3300, the Substance Abuse Educator, Mary Crozier, at 221-3631, or the Health Educator, Cynthia Burwell, at 221-2195.

Sincerely,

Kenneth E. Smith, Jr.
Chair, Alcohol Task Force

APPENDIX B

Table 1

One-Factor Analysis of Variance for DIT by Drinking Category

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	514.7656	171.5885	.5572	.6444
Within Groups	110	33877.0794	307.9734		
Total	113	34391.8449			

Table 2

One-Factor Analysis of Variance for DIT by Class

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Probability
Between Groups	3	2064.6775	688.2258	2.34	.0771
Within Groups	110	32327.1674	293.8833		
Total	113	34391.8449			

Table 3

T-test for Independent Samples of Gender by DIT Scores

	NUMBER	MEAN	SD	SE OF MEAN
Men	38	33.6	15.7	2.5
Women	76	42.1	17.6	2.0

Mean Difference = -8.47

Variance	t-value	df	2-tail sig.	SE of Difference	95% Conf. Interval
Equal	-2.50	112	.014**	3.39	(-15.19, -1.76)

****significant at .05 level**

Table 4

One-Factor Analysis of Variance for

Confidence Scores

by Alcohol Consumption Category

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Probability
Between Groups	3	307.6971	102.5657	.9922	..3993
Within Groups	110	11370.7678	103.3706		
Total	113	11678.4649			

Table 5

One-Factor Analysis of Variance for Sexual Identity Subscale by Alcohol Consumption Category

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Probability
Between Groups	3	84.0773	28.0258	1.071	.9558
Within Groups	110	28796.2034	261.7837		
Total	113	28880.2807			

Table 6

One-Factor Analysis of Variance for CABA Subscale by Alcohol Consumption Category

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	300.7248	100.2416	.9758	.4069
Within Groups	110	11299.6963	102.7245		
Total	113	11600.4211			

Table 7

One-Factor Analysis for Variance for EIS Confidence Subscale by Class

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	918.1920	306.0640	1.2040	.3118
Within Groups	110	27962.0888	254.2008		
Total	113	28880.2807			

Table 8

One-factor Analysis of Variance for EIS Sexual Identity Subscale by Class

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	976.7212	325.5737	3.3465	.0218**
Within Groups	110	10701.7438	97.2886		
Total	113	11678.4649			

**** significant at .05 level**

Table 9

One-Factor Analysis of Variance for CABA Subscale by Class

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	168.9273	56.3091	.5418	.6547
Within Groups	110	11431.4938	103.9227		
Total	113	11600.4211			

Table 10

T-Test Summary for Confidence Subscale by Gender

	NUMBER	MEAN	SD	SE OF MEAN
Men	38	83.3	15.9	2.6
Women	76	86.5	16.0	1.8

Mean Difference = -3.2105

Variance	t-value	df	2-tail sig.	SE of Difference	95% Conf. Interval
Equal	-1.01	112	.314	3.176	(-9.503, 3.082)

Table 11

T-Test Summary for Sexual Identity Subscale by Gender

	NUMBER	MEAN	SD	SE OF MEAN
Men	38	63.6	9.3	1.5
Women	76	64.4	10.6	1.2

Mean Difference = -.7763

Variance	t-value	df	2-tail sig.	SE of Difference	95% Conf. Interval
Equal	-.38	112	..703	2.027	(-4.793,3.241)

Table 12

T-Test Summary for CABA Subscale by Gender

	NUMBER	MEAN	SD	SE OF MEAN
Men	38	52.3	10.5	1.7
Women	76	54.2	9.9	1.1

Mean Difference = -1.8947

Variance	t-value	df	2-tail sig.	SE of Difference	95% Conf. Interval
Equal	-.94	112	.349	2.0	(-5.885, 2.096)

Table 13

One-Factor Analysis of Variance by Alcohol Consumption Category for SID Dualism Subscale

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	127.6650	42.5550	.3712	.7740
Within Groups	110	12611.9251	114.6539		
Total	113	12739.5902			

Table 14

One-Factor Analysis of Variance for SID Relativism Subscale by Alcohol Consumption Category

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	8.9802	2.9934	.0253	.9945
Within Groups	110	13006.7764	118.2434		
Total	113	13015.7566			

Table 15

One-Factor Analysis of Variance for the SID Commitment Subscale by Alcohol Consumption Category

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	2572.1265	857.3755	3.8819	.0111**
Within Groups	110	24295.0833	220.8644		
Total	113	26867.2097			

** significant at .05 level

Table 16

One-Factor Analysis of Variance for the SID Empathy Subscale by Alcohol Consumption Category

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	1278.1205	426.0402	2.6846	.0502
Within Groups	110	17456.4995	158.6955		
Total	113	18734.6200			

Table 17

One-Factor Analysis of Variance for SID Dualism Subscale by Class

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	613.8643	204.6214	1.8562	.1412
Within Groups	110	12125.7258	110.2339		
Total	113	12739.5902			

Table 18

One-Factor Analysis of Variance for SID Relativism Subscale by Class

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	1050.9650	350.3217	3.2207	.0255**
Within Groups	110	11964.7915	108.7708		
Total	113	13015.7566			

**significant at .05 level

Table 19

One-Factor Analysis of Variance for SID Commitment Subscale by Class

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	806.7842	268.9281	1.1351	.3382
Within Groups	110	26060.4256	236.9130		
Total	113	26867.2097			

Table 20

One-Factor Analysis of Variance for SID Empathy Subscale by Class

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	391.9231	130.6410	.7834	.5056
Within Groups	110	18342.6970	166.7518		
Total	113	18734.6200			

Table 21

T-test Summary for SID Dualism Subscale

by Gender

	NUMBER	MEAN	SD	SE OF MEAN
Men	38	48.4	10.1	1.6
Women	76	47.7	10.9	1.3

Mean Difference = .7474

Variance	t-value	df	2-tail sig.	SE of Difference	95% Conf. Interval
Equal	.35	112	.725	2.1	(-3.449, 4.943)

Table 22

T-test Summary for SID Relativism Subscale

by Gender

	NUMBER	MEAN	SD	SE OF MEAN
Men	38	48.7	10.4	1.7
Women	76	49.0	10.9	1.3

Mean Difference = -.3434

Variance	t-value	df	2-tail sig.	SE of Difference	95% Conf. Interval
Equal	-.16	112	..873	2.1	(-4.587, 3.900)

Table 23

T-test Summary for SID Commitment Subscale

by Gender

	NUMBER	MEAN	SD	SE OF MEAN
Men	38	64.7	18.1	2.9
Women	76	67.1	13.9	1.6

Mean Difference = -2.3729

Variance	t-value	df	2-tail sig.	SE of Difference	95% Conf. Interval
Equal	-.77	112	.441	3.069	(-8.454, 3.708)

Table 24

T-test Summary for SID Empathy Subscale

by Gender

	NUMBER	MEAN	SD	SE OF MEAN
Men	38	50.7	13.0	2.1
Women	76	54.3	12.7	1.5

Mean Difference = -3.5458

Variance	t-value	df	2-tail sig.	SE of Difference	95% Conf. Interval
Equal	-1.39	112	.167	2.548	(-8.594, 1.502)

Table 25

Relationship between Alcohol Consumption Category and Class

	Abstainer	Drinker	Binger	Frequent Binger	Totals
Freshmen (Count)	11	5	11	5	32 (28.1%)
(Exp Val)	9.5	8.4	7.6	6.5	
Sophomores	11	9	6	6	32 (28.1%)
	9.5	8.4	7.6	6.5	
Juniors	6	9	4	6	25 (21.9%)
	7.5	6.6	5.9	5.0	
Seniors	6	7	6	6	25 (21.9%)
	7.5	6.6	5.9	5.0	
Totals	34 (29.8%)	30 (26.3%)	27 (23.7%)	23 (20.2%)	114 (100%)

Table 26

Chi-Square Test for Alcohol Consumption Category and Class

Chi-Square	Value	DF	Significance
Pearson	6.58	9	.68
Likelihood Ratio	6.67	9	.67

Table 27

Relationship between Gender and Alcohol Consumption Category

Gender	Abstainer	Drinker	Binger	Frequent Binger	Totals
Men (Count)	10	7	8	13	38 (33.3%)
(Exp Val)	11.3	10.0	9.0	7.7	
Women	24	23	19	10	76 (66.7%)
	22.7	20.0	18.0	15.3	
Totals	34 (29.8%)	30 (26.3%)	27 (23.7%)	23 (20.2%)	114 (100%)

Table 28

Chi-Square Test for Gender and Alcohol Consumption Category

Chi-Square	Value	DF	Significance
Pearson	7.32	3	.062
Likelihood Ratio	7.02	3	.071

Table 29

One-Factor Analysis of Variance for Activity Level

by Alcohol Consumption Category

Source	DF	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	9.4525	3.1508	2.9446	.0362**
Within Groups	110	117.7054	1.0700		
Total	113	127.1579			

****significant at .05 level**

Table 30

Relationship between Greek Membership

and Alcohol Consumption Category

		Non-Greek Member	Greek Member	Totals
Abstainer	(Count)	32	2	34 (29.8%)
	(Exp.Val)	22.4	11.6	
Drinker		25	5	30 (26.3%)
		19.7	10.3	
Binger		10	17	27 (23.7%)
		17.8	9.2	
Frequent Binger		8	15	23 (20.2%)
		15.1	7.9	
Totals		75 (65.8%)	39 (34.2%)	114 (100%)

Table 31

Chi-Square Test for Greek Membership

by Alcohol Consumption Category

Chi-Square	Value	DF	Significance
Pearson	35.97	3	.000**
Likelihood Ratio	38.91	3	.000

**significant at .01 level

Table 32

One-Factor Analysis of Variance for Commitment and Empathy Subscales

by Binge Drinking Status

Commitment

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Probability
Between Groups	1	2377.3190	2377.3190	10.8722	.0013
Within Groups	112	24489.8908	218.6597		
Total	113	26867.2097			

Empathy

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Probability
Between Groups	1	1142.6334	1142.6334	7.2746	.0081
Within Groups	112	17591.9867	157.0713		
Total	113	18734.6200			

Table 33

Relationship between Greek Membership and Binge Drinking Status

	Non-Greek	Greek	Total
Non-Binger(count)	56	8	64 (56.1%)
(exp val)	42.1	21.9	
Binger (count)	29	31	50 (43.9%)
(exp val)	32.9	17.1	
Total	75 (65.8%)	39 (34.2%)	114(100%)

Chi-square	Value	DF	Significance
Pearson	30.56	1	.0000
Likelihood Ratio	31.84	1	.0000

Table 34

Relationship between Volunteerism and Alcohol Consumption Category

	Non-Volunteer	Volunteer	Totals
Abstainer (Count)	21	13	34
(Exp Value)	21.5	12.5	29.8%
Drinker	14	16	30
	18.9	11.1	26.3%
Binger	18	9	27
	17.1	9.9	23.7%
Frequent Binger	19	4	23
	14.5	8.5	20.2%
Totals	72 (63.2%)	42 (36.8%)	114 (100%)

Chi-Square	Value	DF	Significance
Pearson	7.42	3	.059
Likelihood Ratio	7.73	3	.052

Table 35

Relationship between Volunteerism and Binge Drinking Status

	Non-Volunteer	Volunteer	Totals
Non-Binger (Count)	34	30	64 (56.1%)
(Exp Value)	40.4	23.6	
Binger (Count)	38	12	50 (43.9%)
(Exp Value)	31.6	18.4	
Totals	72 (63.2%)	42 (36.8%)	114 (100%)

Chi-Square	Value	DF	Significance
Pearson	6.31	1	.012**
Likelihood Ratio	6.47	1	.011

****chi-square significant at the .05 level**

Table 36

Relationship between Leadership and Alcohol Consumption Category

	Abstainer	Drinker	Binger	Frequent Binger	Totals
Leader (Count)	25	22	12	12	71
(Exp. Value)	21.2	18.7	16.8	14.3	62.3%
Non-Leader (Count)	9	8	15	3	43
(Exp Value)	12.8	11.3	10.2	8.7	37.7%
Total	34 (29.8%)	30 (26.3%)	27 (23.7%)	23 (20.2%)	114 100%

Chi-Square	Value	DF	Significance
Pearson	8.05	3	.045**
Likelihood Ratio	8.06	3	.045

****chi-square significant at the .05 level**

Vita

Laura Greer Hensley

Birthdate: June 11, 1968

Birthplace: Roanoke, Virginia

Education:

1995-97	The College of William and Mary Williamsburg, Virginia Doctor of Education in Counseling
1994-95	The College of William and Mary Williamsburg, Virginia Educational Specialist in Counseling
1990-92	Hollins College Roanoke, Virginia Master of Arts in Psychology
1986-90	The University of Virginia Charlottesville, Virginia Bachelor of Arts in Psychology